VOLUME XXXII NUMBER ONE

THE NATIONAL GEOGRAPHIC MAGAZINE

JULY, 1917

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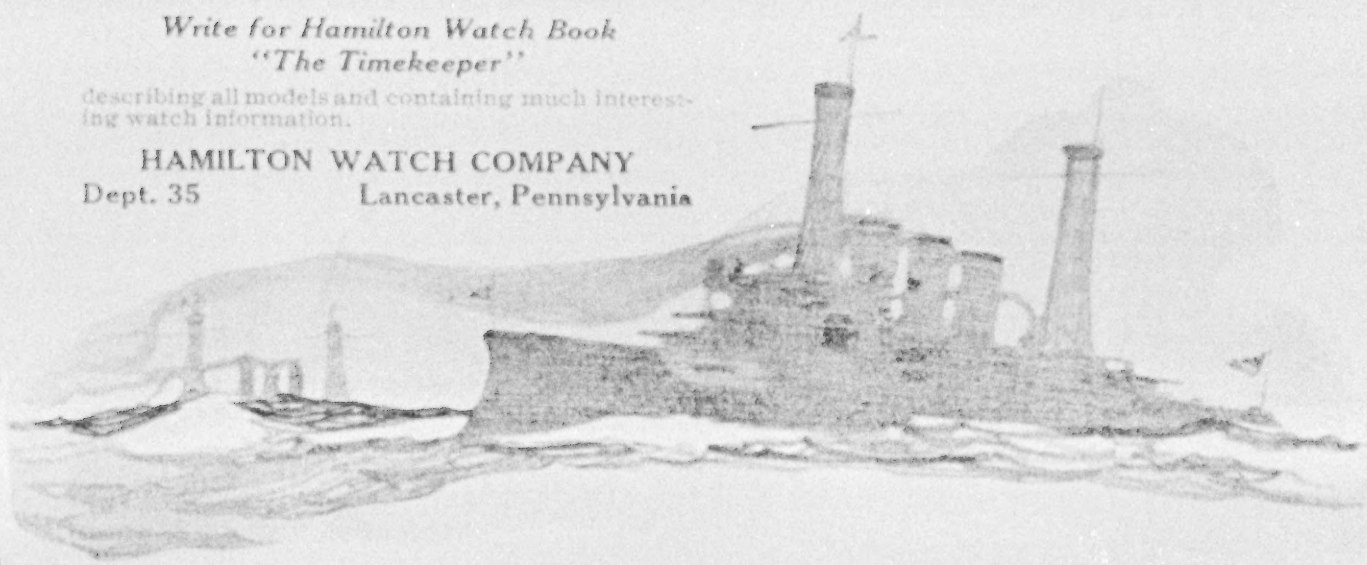

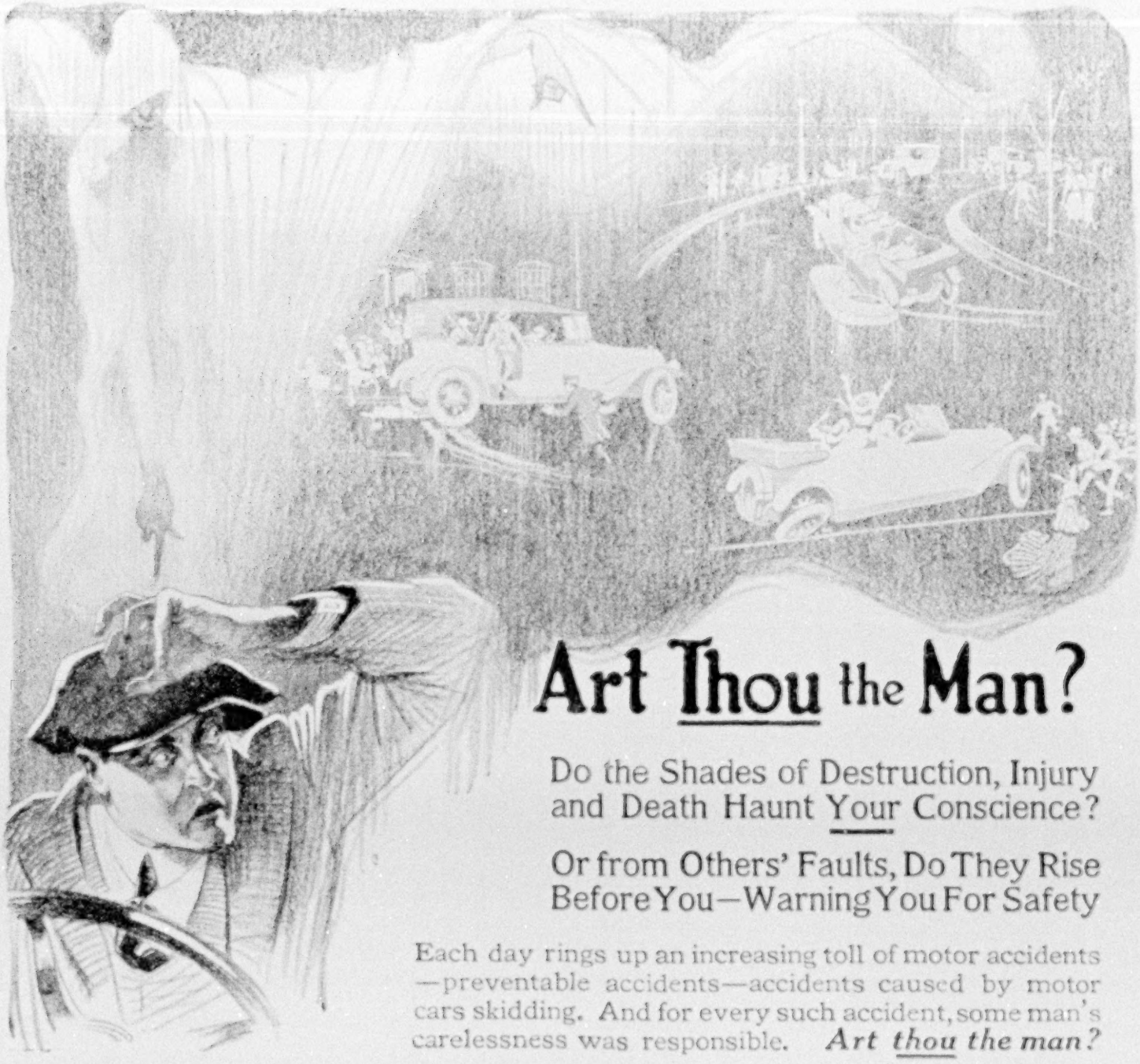

Art Thou the Man?

Do the Shades of Destruction, Injury and Death Haunt Your Conscience?

Or from Others' Faults, Do They Rise Before You—Warning You For Safety

Each day rings up an increasing toll of motor accidents—preventable accidents—accidents caused by motor cars skidding. And for every such accident, some man's carelessness was responsible. ***Art thou the man?***

From these accidents, financial loss has resulted, with injury and suffering to human beings. Death too has often followed—irreparable, irrevocable death—with all the sorrows and trials and hardships that death brings to the bereaved ones. And all because some *one* man thought *he* was immune—carelessly indifferent to the accident-preventing value of Tire Chains. ***Art thou the man?***

Someone was responsible for each accident from skidding. Whether the car that skidded—smashed, maimed or killed its own occupants or crashed into another car, mutilating or taking the lives of its innocent passengers, the cause was the same—the lack of Tire Chains. It began with some one man's individual carelessness. ***Art thou the man?***

Neither your life, nor the lives of those with you, are safe if *your* car is not made skidproof with chains when the roads are wet and slippery. And no matter how careful *you* are, if *others* fail to safeguard their cars, each such careless driver endangers you and those with you.

Carelessness is even now arranging the plans for the next accident from skidding. Some certain man is already preparing to be responsible for that accident—

Art thou the man?

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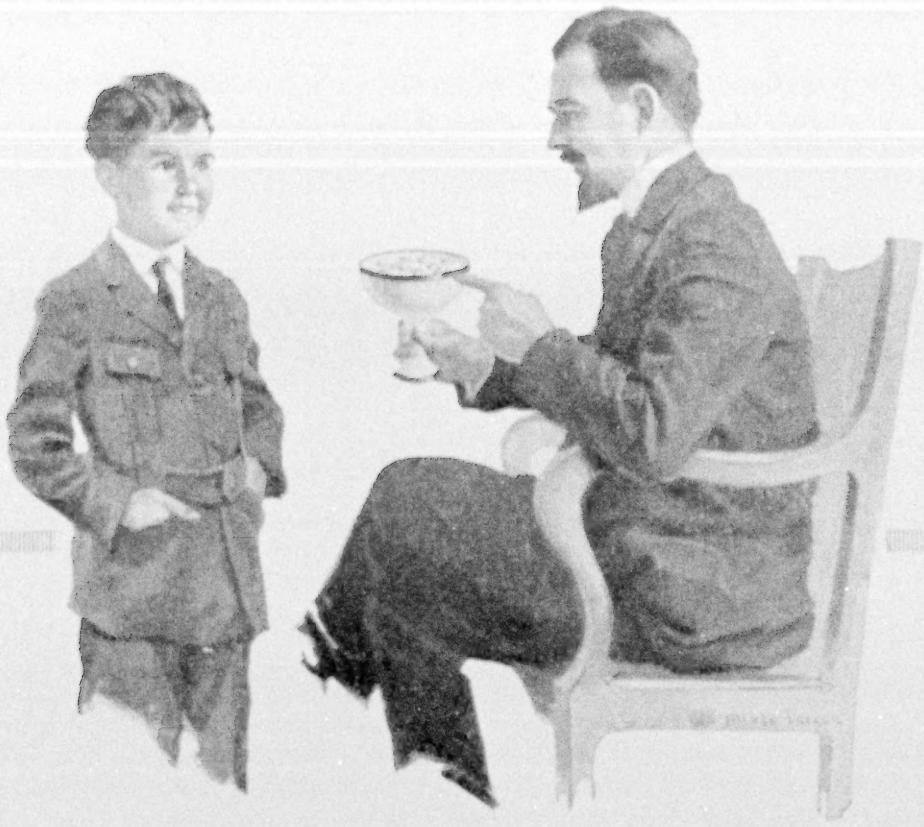
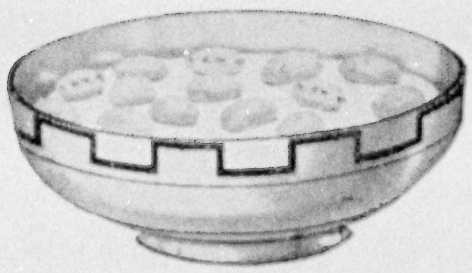


Where the Doctor and the Boy Agree

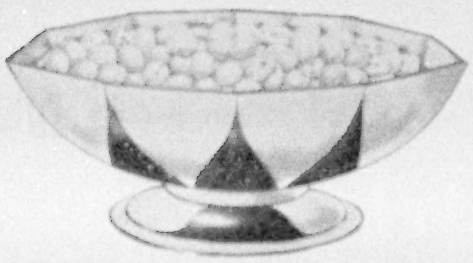
Every doctor, we think, if asked about boy-food, will advise Puffed Wheat and Rice.

For these are Prof. Anderson's scientific foods. They are whole grains made wholly digestible. Every food cell is exploded. Every atom feeds.

Doctors stand for whole-grain diet. And no other method so fits whole grains for food.



Float in Every Bowl of Milk



Keep Them Handy for Hungry Boys

But most boys, also, if asked what they liked best, would say Puffed Wheat and Puffed Rice.

For these are food confections. They are bubbles of grain, toasted and flavory, puffed to eight times normal size. To most boys they are more than meal-time dainties. They carry bagfuls, doused with melted butter, when they go to play.

Don't be stingy with these foods on which doctors and boys agree. Whole-grain foods are all too scarce in the ordinary diet. Let Puffed Grains supply them, not for breakfast only, but at any time and in any way in which the children like them.

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Puffed Wheat **Puffed Rice**

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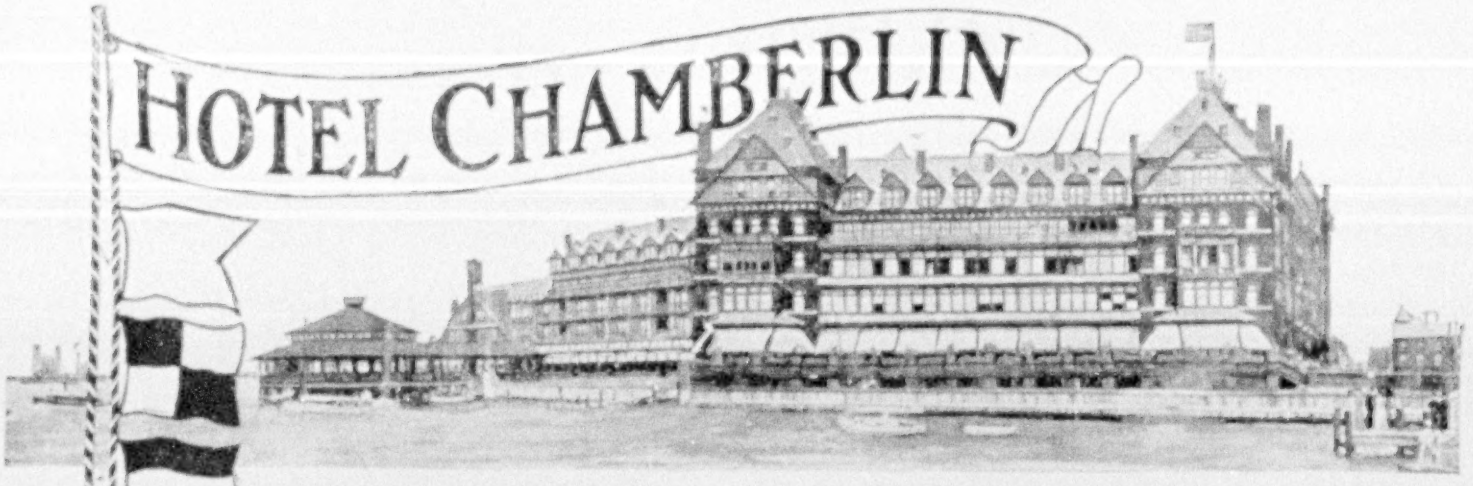

We often get letters which run somewhat as follows:

"I have friends, relatives or acquaintances who have gone abroad; I have a son, brother or friend who is just about to go. I have for months been doing work to alleviate the suffering of those on the other side, or to help out the interests of civilization. I am played out, exhausted, nervous and tired. I want a rest. I want to get away from the turmoil and hustle of this European conflict. I must have cheerful, comfortable environment; I must have careful medical supervision. I want good climatic conditions and a change of food. I need Treatments which will supplement all the natural advantages, so I am coming to you, because I know that Old Point Comfort and The Chamberlin will fulfill all of these conditions."

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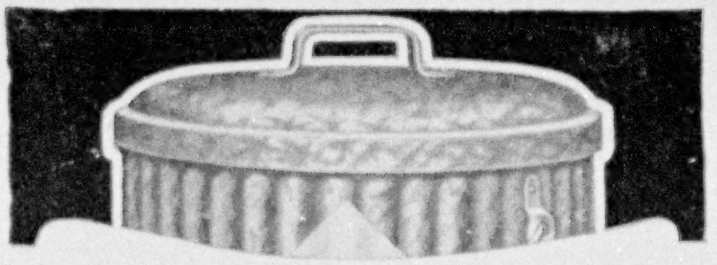

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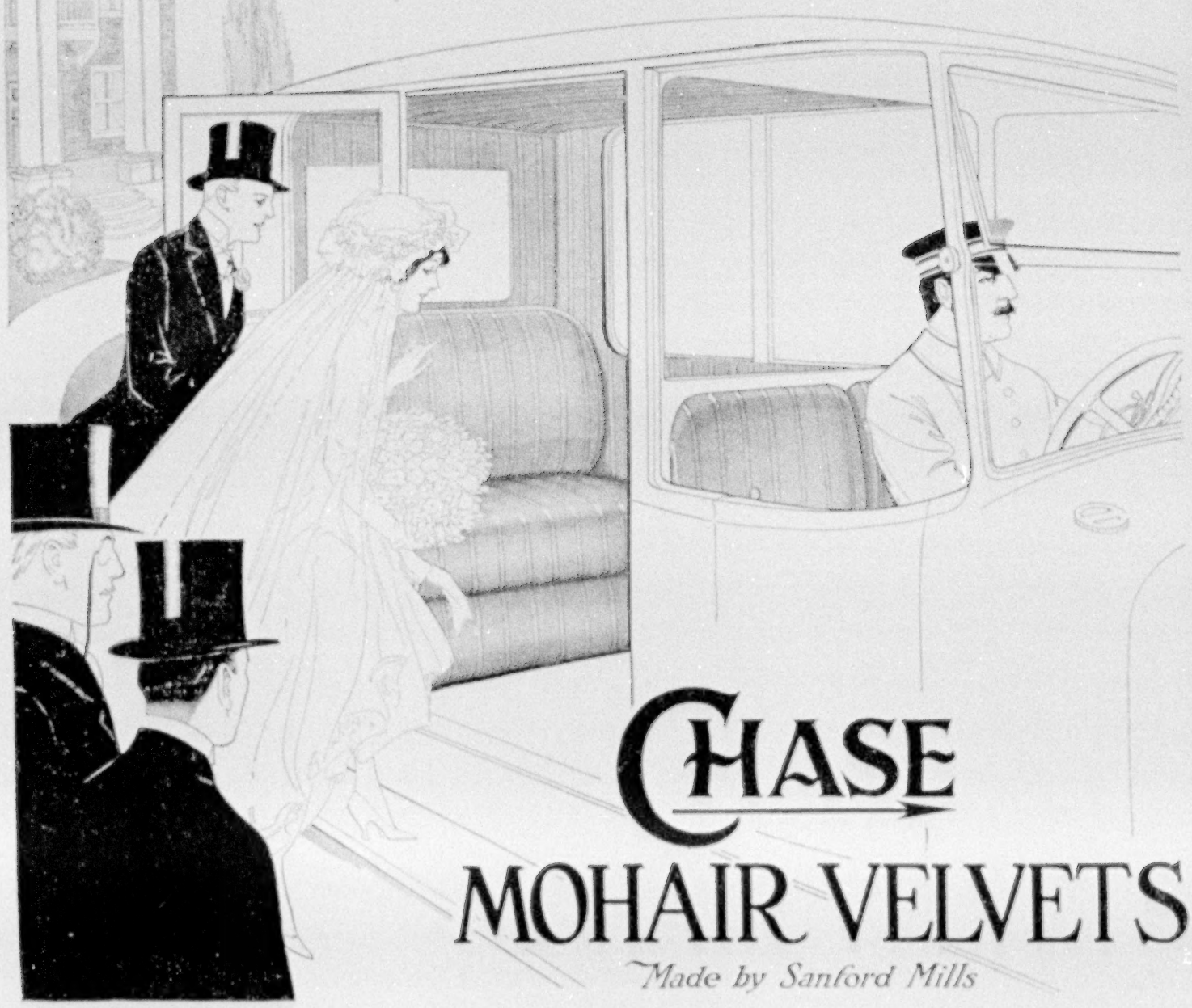

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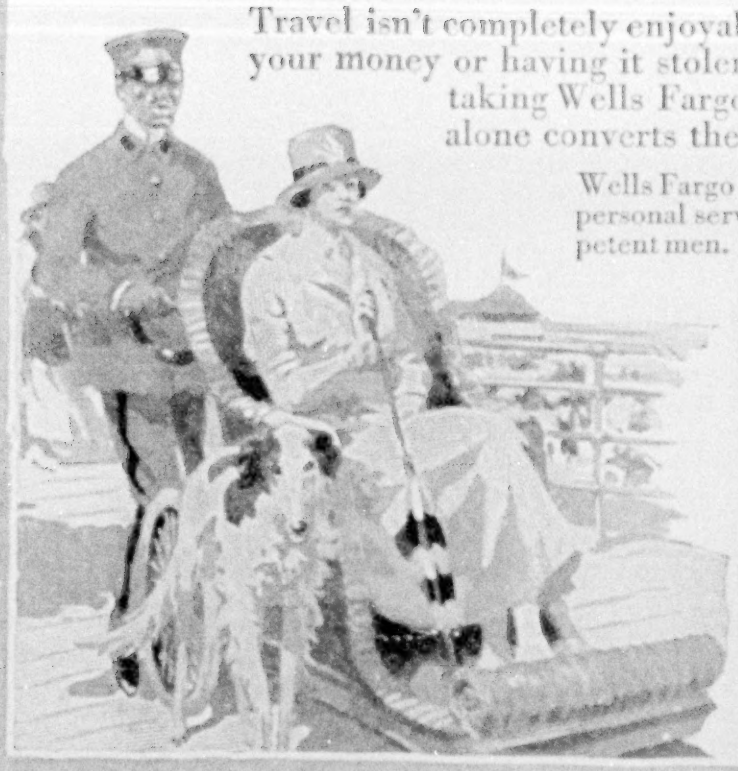

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This comparison sent upon request for Circular AN-61

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National City Bank Building
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VOL. XXXII, No. 1 WASHINGTON JULY, 1917

THE NATIONAL GEOGRAPHIC MAGAZINE

THE RAT PEST

The Labor of 200,000 Men in the United States Required to Support Rats, Man's Most Destructive and Dangerous Enemy

By Edward W. Nelson

Chief of the U. S. Biological Survey

Readers of the Geographic *will recall with pleasure Mr. Nelson's informative article on the Larger North American Mammals, published in this magazine in November, 1916, and illustrated by a remarkable series of four-color reproductions of paintings by Louis Agassiz Fuertes. The following article embraces information obtained by Mr. Nelson during years of research and study of mammals, especially rats and squirrels. A third article by this author will be published in an early issue of the* Geographic, *his subject being the Smaller North American Mammals, illustrated by a second series of 32 pages of color illustrations reproduced from Mr. Fuertes' paintings.*

HOUSE rats are extremely numerous and are world-wide in distribution. At the present time they destroy annually hundreds of millions of dollars' worth of foodstuffs and other property, and through the distribution of bubonic plague and other diseases cause the deaths of untold numbers of human beings. These facts being known, why should we delay in vigorously using known methods for the elimination from our homes and communities of these wasteful and loathsome pests?

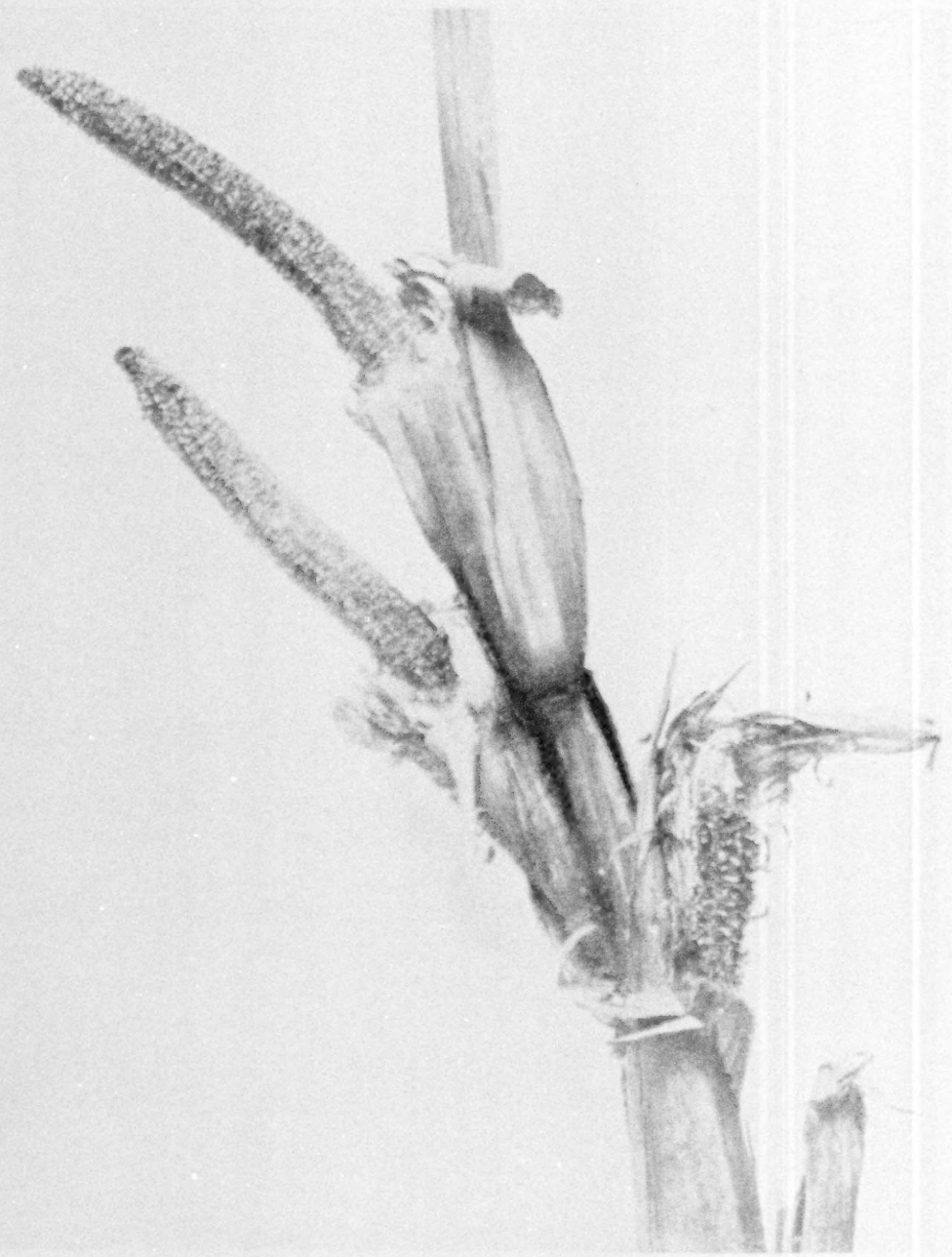
The common house-frequenting rats are of three species, the brown, the black, and the roof rat. All are believed to be natives of Asia, whence they have spread to most parts of the world. In their relations to man their habits are so similar that they may be included in one account. The larger size, abundance, more general distribution, and aggressive predominance of the brown rat, also known as the Norway and wharf rat, has led to its being generally known as "the house rat."

So far as known, these rodents are always and everywhere thoroughgoing pests, with no usefulness to man.

The history of the brown rat is an extraordinary one, unequaled by that of any other mammal. It was unknown in Europe until 1727, when vast hordes of them swam the Volga River. A year or two later it arrived in England on ships from the Orient. Since that time it has steadily extended its distribution by means of ships and other transportation agencies, and by migrations overland, until it shares with mankind nearly all parts of the earth from Greenland to Patagonia and around the globe.

It is a sturdy, fierce, and cunning animal with extraordinary fecundity. These characteristics have enabled it quickly to

A CORNFIELD NEAR WASHINGTON DESTROYED BY RATS



CORN IN A FIELD NEAR WASHINGTON DESTROYED BY RATS

Photographs from U. S. Biological Survey

It is estimated that rats each year destroy in the United States food to the value of $200,000,000, enough food to feed the people of Belgium for one year (see pages 10-11)

overrun and occupy new territory despite the never-ceasing warfare waged against it by man and the competition of other mammals.

The smaller black rat and roof rat formerly existed in most parts of the Old World. They preceded the brown rat also in America, but when the latter arrived were promptly reduced by it to a secondary position or exterminated. Black rats still exist in some parts of the United States, and roof rats are common with the brown rat in the milder climate of the Southern States.

IT MAY HAVE TWELVE LITTERS A YEAR

The greater size of the brown rat readily distinguishes it from either of the other species. It averages from one to one and a half pounds in weight and about 18 inches in length. Occasional giants of its kind occur, however, as shown by the capture, near Canterbury, England, of one huge individual weighing over four pounds and measuring 22½ inches in length.

With an abundant food supply brown rats increase with almost incredible rapidity. They have from three to twelve litters a year, each containing from six to more than twenty young, the average being about ten. The young begin to breed when less than three months of age.

Rats are nocturnal and as a rule keep hidden during the day in holes and other places of concealment about buildings or in burrows which they dig in the ground. Within their retreats they make warm nests of shredded fibrous material, often cut from costly fabrics, in which their naked and helpless young are safely brought forth.

After careful investigation the United States Public Health Service estimates that the number of rats living under normal conditions in our cities equals the human population, but that in country districts they are relatively three or four times as numerous.

This estimate is practically the same as that obtained some years ago in Great Britain and Ireland, Denmark, France, and Germany. At intervals, as the result of especially favorable conditions of food supply and weather, extraordinary increases of rats occur over considerable areas and the damage by them is enormously increased.

A vivid realization of the multitude of rats which thrive as parasites on man's industry may be gained from the results of local campaigns against them. In 1904 a plague of rats occurred in Rock Island and Mercer counties, Illinois, and during the month ending April 20 one man killed 3,445 on his farm.

During the campaign of the Public Health Service against the bubonic plague in San Francisco from 1904 to 1907, inclusive, more than 800,000 were killed; and in New Orleans, during 1914 and 1915, 551,370 were destroyed.

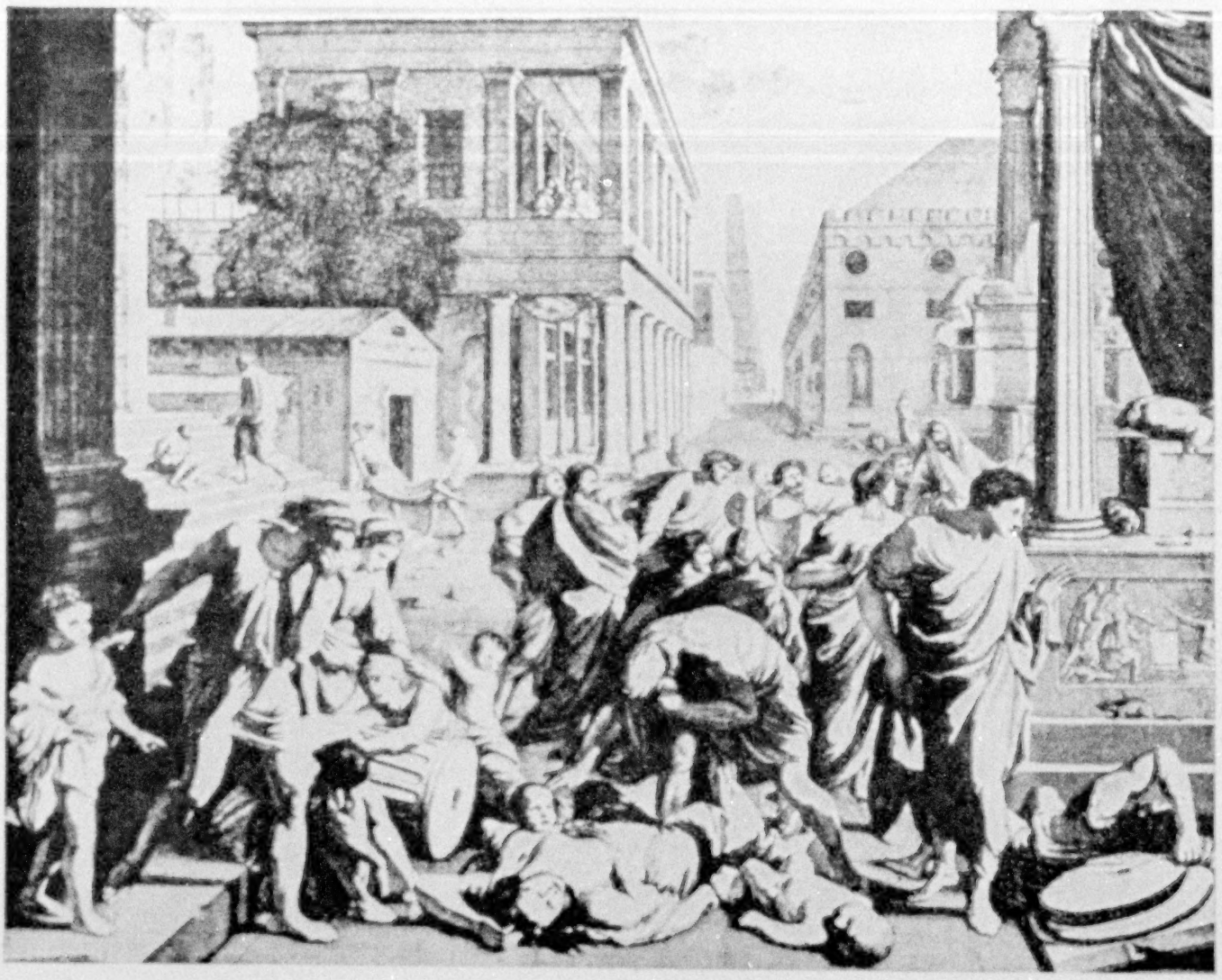
During the winter and spring of a single year more than 17,000 rats were killed on a rice plantation containing 400 acres in Georgia, and by actual count 30,000 were killed on another plantation containing about 1,200 acres. On a farm of about 150 acres on Thompson Island, in Boston harbor, 1,300 occupied rat holes were counted and other rats were living about the farm buildings. At a large meat-packing establishment in Chicago from 4,000 to 9,000 have been killed yearly.

AMAZING NUMBERS INFEST GRAIN VESSELS

Islands in the tropical or semitropical seas furnish ideal conditions for rats, and in many instances they have increased until they have become intolerable pests, threatening the total ruin of the inhabitants. On one sugar-cane plantation in Porto Rico 25,000 rats were killed in less than six months.

In Jamaica an effort was made to suppress them by introducing the mongoose, which resulted in the establishment of a second pest. In the Hawaiian Islands the introduction of the mongoose caused the rats to take refuge in the tree-tops, where many of them have nests and have arboreal habits, like squirrels. Wherever present on these islands the mongoose has rendered it exceedingly difficult to raise domestic fowls of any kind.

As has long been known, rats are very numerous on ships. After the fumigation of a grain vessel at Bombay 1,300



From a painting by Poussin. Photograph from Boelter

ILLUSTRATING THE "BLACK DEATH" PLAGUE, A RAT-SPREAD DISEASE DURING THE MIDDLE AGES IN EUROPE, WHICH COST 25,000,000 LIVES (SEE PAGE 13)

dead rats were found, and the fumigation of the steamship *Minnehaha* at London yielded a bag of 1,700. In eight years 572,000 were killed on the London docks, including those on the ships.

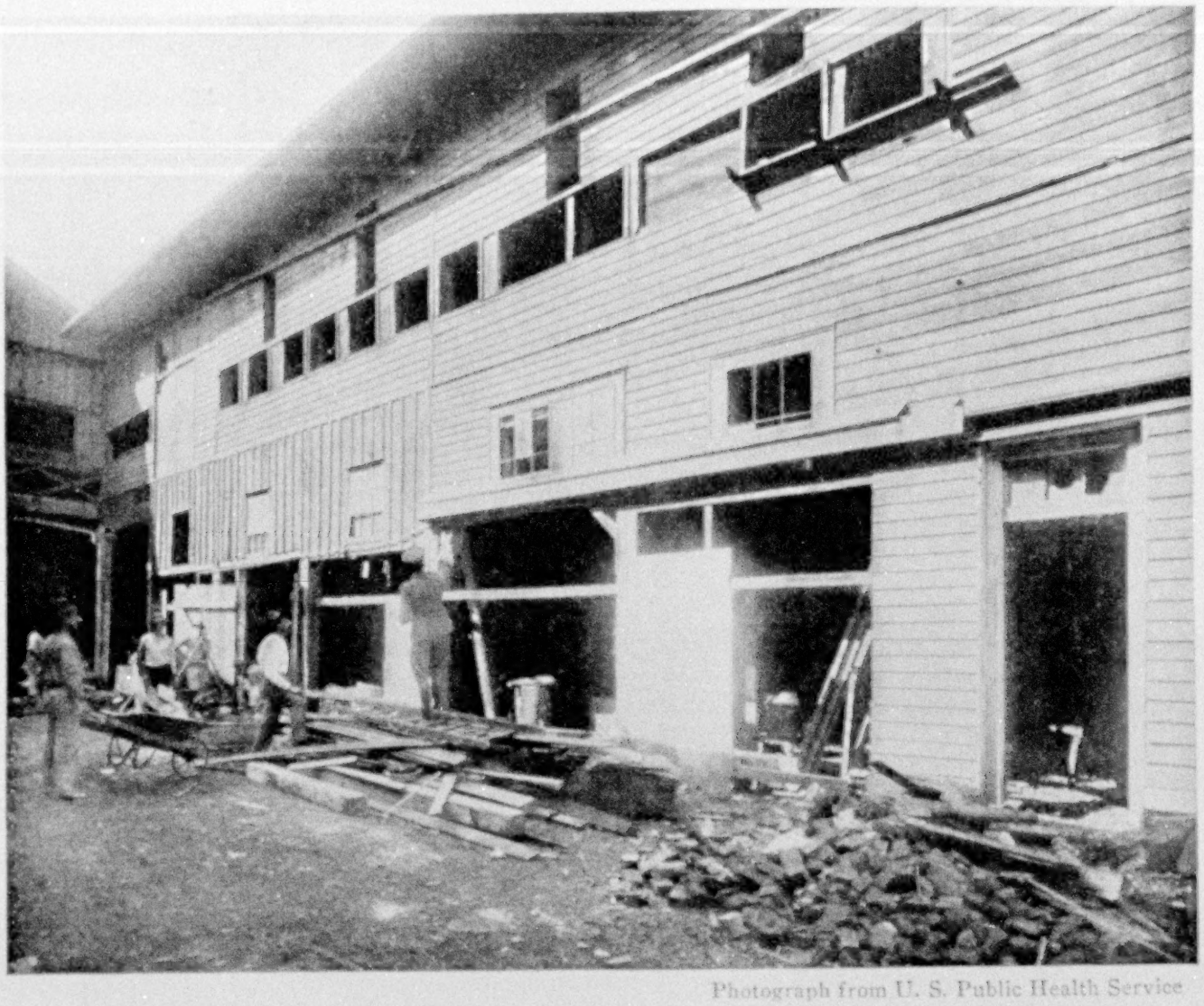
As reported to Parliament by the Famine Commission, in 1881, a rat plague existed in southern Deccan and the Mahratta districts of India. Bounties were paid for destruction of rats and more than 12,000,000 were killed. On many occasions, both on the mainland as well as on islands, the unlimited increase of rats has finally led to the almost total loss of crops and other food supplies and resulting famines.

One of the most amazing accounts of the abundance of these animals comes from the Island of South Georgia, on the border of the Antarctic east of Cape Horn. For some years summer whaling operations have been conducted at this island and great numbers of whale carcasses, after being stripped of the blubber, have drifted ashore. The short cool summers and long cold winters of this region preserve the bodies from rapid decay and the rats which have landed from the ships find there a never-ending surplus of meat.

As a consequence they have multiplied until they now exist literally by millions. They make their nests in the grass and peat back from the shore and swarm along well-worn roads they have made on the mountain sides.

THEY MARCH LIKE ARMIES

The ready adaptability of rats to their surroundings is one of the qualities which has enabled them to conquer the world. On the approach of warm weather in summer large numbers of them leave buildings and resort to fields on farms, or to the outskirts of the towns, where the growing vegetation, particularly cultivated plants, affords them an abundant food supply until the approach of winter. At the beginning of cold weather they return again to the shelter of buildings,



Photograph from U. S. Public Health Service

WRECKING A BUILDING IN THE CENTER OF THE NEW ORLEANS PLAGUE DISTRICT

When New Orleans was threatened with bubonic plague buildings were razed to the ground in the effort to exterminate the rodents which carried the germs of the dread disease. The structure shown above was a combined stable and junk warehouse, which, with several other buildings, was surrounded by a two-story brick wall. In the inclosure there was a small house for the stableman, the ground floor of which was only six inches above the level of the court. When this floor was removed 54 of the total of 86 rats captured during the wrecking of all the buildings were killed, and of these 20 were found to be plague infected.

where they find the harvested crops ready for their consumption.

When the food supply suddenly decreases, following a period of plenty during which the rats have greatly increased in numbers, a migratory impulse appears to affect the entire rat population over large areas and a general migration takes place. At such times the rats are extraordinarily bold, swimming rivers without hesitation and surmounting all other natural obstacles. The first invasion of Europe, when rats swam the Volga, was an instance of this kind. Experiments by the U. S. Public Health Service have shown that when released in the water of a harbor rats may swim ashore for a distance of 1,500 yards.

An observer in Illinois, who saw a more local migration, states that he was passing down a road in the moonlight one night in the spring when he heard a rustling in a field near by. Soon a great army of rats swarmed across the road before him, extending as far as he could see. This district afterward suffered severely from the presence of these pests.

The extent to which rats wander from centers of abundance was well illustrated in New Orleans by experiments of our Public Health Service. One hundred and seventy-nine marked rats were released at a point in the residential part of the city. In less than 60 hours one of the marked rats was captured in a trap about a mile from the point where it was liberated, and within two weeks others

Photograph from U. S. Public Health Service

BACTERIOLOGICAL EXAMINATION OF RODENT CARCASSES: NEW ORLEANS

From July 8, 1914, to July 22, 1917, 417,019 rats were examined in this manner by the bacteriological staff of the Public Health Service; 1,160,687 rodents were captured in traps by the U. S. Public Health Service, but only the undamaged carcasses were subjected to this scrutiny

were taken at various points in a direct line up to a distance of four miles.

Rats are excellent climbers, as every one appreciates who has seen them about barns and other buildings. They have also demonstrated their skill in this in the Hawaiian Islands and elsewhere.

In cities they have been seen to climb iron pipes for the purpose of entering buildings, to travel from one house to another on telephone wires, and to perform other extraordinarily ingenious feats in maintaining themselves.

THEIR DEPREDATIONS COVER WIDE RANGE

It is impossible to ascertain with precision the total losses resulting from the depredations of house rats. It is, however, practicable to secure information on which to base reasonable estimates of losses from this source. Rats are practically omnivorous and their depredations cover a wide range. They feed indifferently upon all kinds of vegetable and animal matter.

They dig up newly planted grain, destroy it while growing, and also when in the shock, stack, crib, granary, mill, elevator, warehouse, wharf, and ship's hold, as well as in the bin and feed trough. They eat fruits, vegetables, and meats in the market, destroying at the same time by pollution far more than is consumed.

They destroy enormous numbers of eggs and poultry, as well as the eggs and young of song and game birds. In addition, they invade stores and warehouses and destroy groceries of every description, as well as furs, laces, silks, carpets, and leather goods.

They cause many disastrous fires by gnawing matches, by gnawing through lead pipe near gas meters, or by cutting the insulation from electric wires in order to secure material for nests and by gathering oil-soaked rags and other inflammable material in their nests; flood houses by gnawing through lead water pipes; ruin artificial ponds and embankments by burrowing, and damage foundations, floors, doors, and furnishings of dwellings.

As disease carriers they also cause enormous commercial losses, especially through the introduction of bubonic plague and the resulting suspension of commerce. With the introduction of plague they become directly responsible for business disaster as well as for an appalling mortality.

The extent and variety of their activities may be indicated by citing instances of depredations by them. Much the greater part of losses from these pests is in foodstuffs, which, as already indicated, are destroyed at every stage from the time the seed is planted until they are ready for human consumption.

A PERSISTENT PLAGUE

Letters received from different States by the Biological Survey report that in places the freshly planted grain has been dug up so persistently by these pests that it has necessitated a second and even a third replanting. When the corn crop is ripening, they again attack it and sometimes destroy the entire crop in small fields, as was the case in a field on the outskirts of Washington, shown on page 2. When corn or other grain is in the shock, rats take shelter under it and do great damage.

The State Commissioner of Health, writing in 1914 concerning conditions in southwestern Virginia, states that rats consume something like 10 per cent of the grain raised in many of the counties and have destroyed 75 per cent of the young chickens and turkeys. The year this statement was made this section of Virginia marketed $70,000 worth of domestic fowls. Similar complaints from all parts of the country as to the destruction of chickens, turkeys, ducks, and geese on farms, and of eggs, both on farms and in storage, indicate an impressive aggregate loss in these items.

A farmer writes from Iowa that his immediate section is terribly infested with rats, which are very destructive to grain in store. He adds that they are undermining the premises with their holes and practically ruining buildings by gnawing holes everywhere at will. Another farmer in Iowa writes that he lost about 25 per cent of 2,000 bushels of corn held in cribs.

Grain stacks are favorite resorts for these animals and hundreds of them frequently gather there, wasting the farm-

XUM

ONE CAT AND TWENTY-FOUR RATS, THE RESULT OF FUMIGATING THE CABIN OF A STEAMSHIP

This cat, an exceptionally good ratter, was supposed to have kept the cabin free from rats. In fumigating she was overlooked. The fumigation of the steamship *Minnehaha* yielded a bag of 1,700 rats (see pages 3-8).

er's substance. In barns and stables they boldly rob cattle, horses, and chickens of their feed, frequently exacting heavy toll.

Poultry ranches often suffer extremely heavy losses, rats sometimes killing hundreds of young chickens, turkeys, ducks, and geese, and even the full-grown fowls.

A commission merchant in Washington stored 100 dozen eggs in a covered wooden tub in his warehouse and at the end of two weeks discovered that the rats had made a hole in the side of the tub near the cover and had carried away more than 70 dozen eggs without leaving any shells or other sign that a single egg had been broken. The ingenuity rats show in stealing eggs is notorious. It is a mystery how they manage to carry away unbroken such smooth, round objects, even taking them up stairways and over other obstacles.

The number of useful insect-eating birds nesting on the ground or in low bushes which fall victims to rats is extremely large and is one of the many kinds of injury done by these pernicious animals which cannot be computed. Probably few frequenters of the countryside have returned to look into a bird's nest to observe its condition without many times finding it destroyed and fragments of egg shells lying about. Unquestionably a large percentage of such nests located in the neighborhood of buildings have been raided by rats.

On one of the small Danish islands it has been authentically recorded that the progeny of a single pair of rats, which escaped from captivity, in two years time exterminated a great colony of birds for which the island had been noted.

Fresh fruits and vegetables are destroyed in the greenhouse, garden, and field; also during transportation on boats and cars and in markets. Cultivated flowers also are destroyed in greenhouses and gardens, as well as after they are cut for the florist.

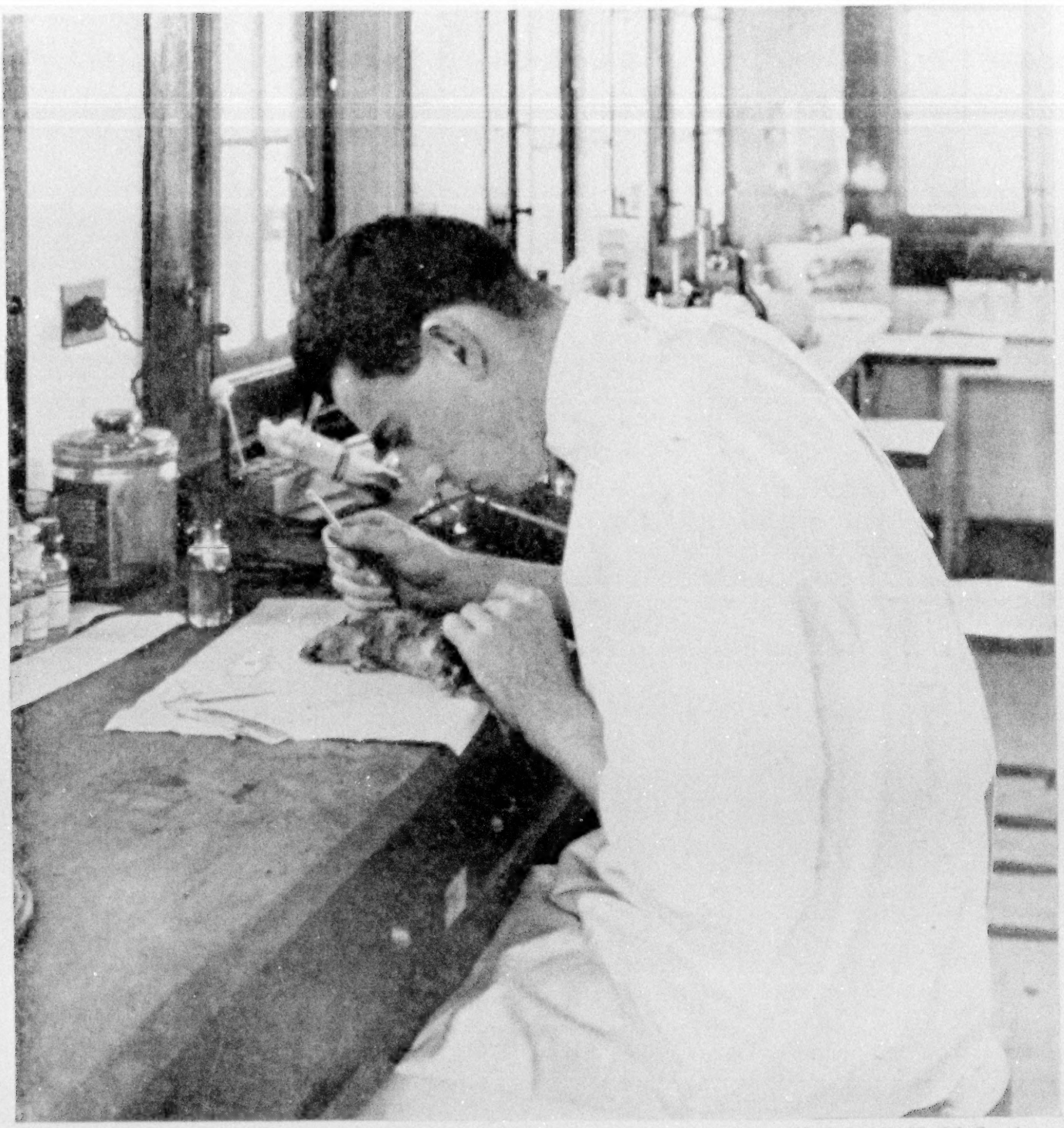
MARKETS, RESTAURANTS, AND SHIPS THEIR FAVORITE ABODE

All ships are known to be infested by rats, and the number killed by fumigation on a single vessel has been known to reach 1,700. Taking into consideration the vast number of vessels engaged in commerce throughout the world, in all of which rats are continually destroying food and other property, it is evident that the sum lost in this way is enormous.

One steamer on a 29-day voyage from India to Antwerp had 44,000 out of 46,000 sacks of grain cut open, entailing an estimated loss of $2,200.

A large milling company in Louisville, Ky., recently asked advice as to controlling the rats and mice on their premises, stating that it has cost them $3,000 a year to repair grain sacks damaged by rodents.

The kitchens and store-rooms of hotels and restaurants are favorite resorts for these pests, which waste and defile far



Photograph from U. S. Public Health Service

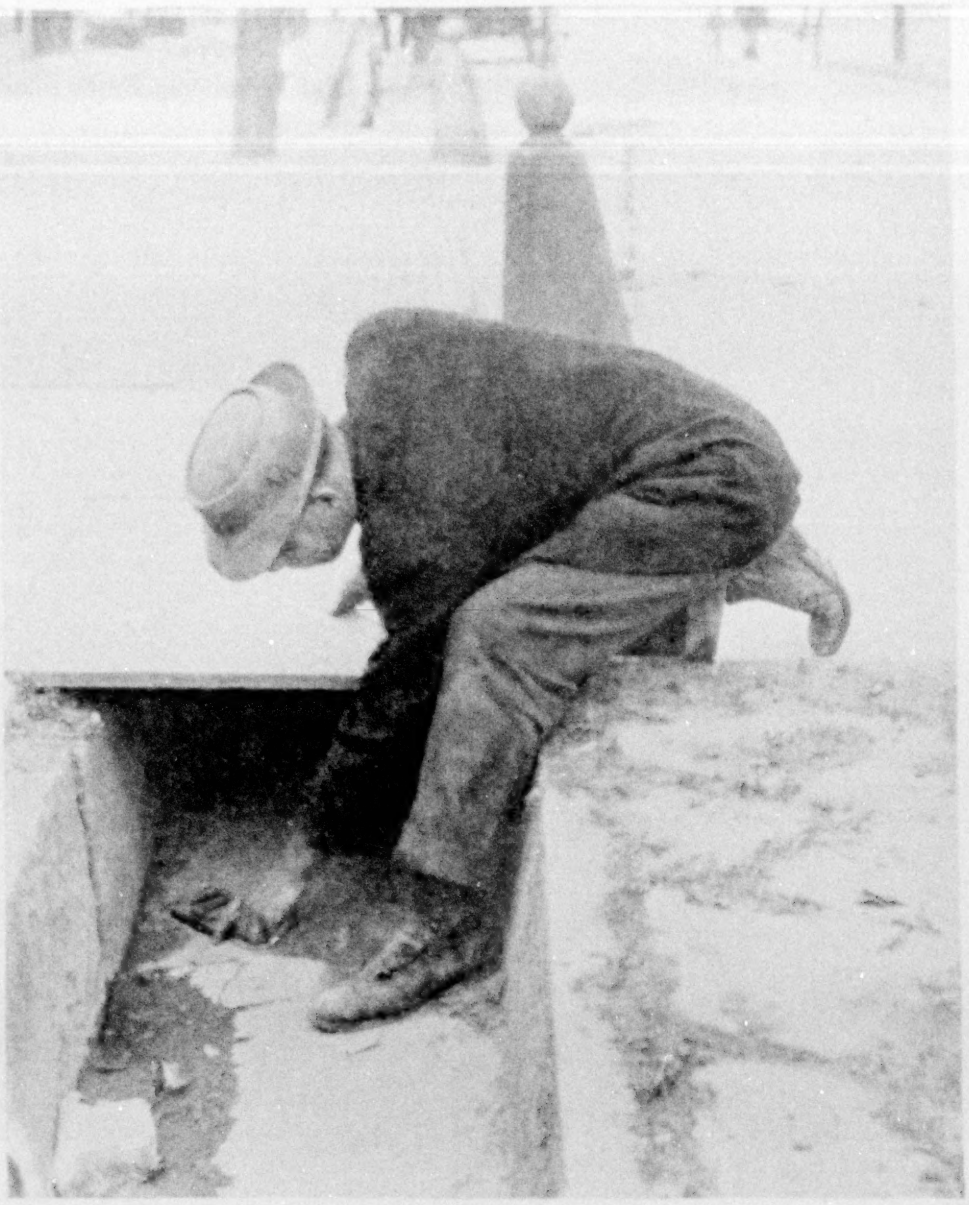
FLEA HUNTING BY THE PLAGUE ERADICATORS

To determine the season of the greatest plague danger, the officials of the U. S. Public Health Service carefully examine a large number of the rats caught. In this picture a dead rat is being combed to discover the number and variety of fleas on its coat, the insects having first been killed by chloroform. These data are compiled and plotted as a curve of "flea incidents," showing graphically the season of greatest danger.

more than they eat. One of the last plague-stricken rats found by the Health Service officers in San Francisco was hidden in a sack of peanuts on the third floor of a warehouse.

In 1898 a large packing-house in Chicago had 3,360 hams destroyed by rats. They are also known to attack living animals, and fat pigs have died as a result of having holes eaten in them. They occasionally gnaw the hoofs of horses until they bleed, and Carl Hagenback was obliged to kill three young elephants owing to incurable wounds made on their feet by rats. When confined in cages the larger rats commonly kill and devour the smaller and weaker ones.

A large department store in Washington at one time lost as high as $30 a night in damaged goods, and a hotel in the same city averaged a loss of $75 a month in damaged linen. One merchant in this



Photograph from U. S. Public Health Service

SNAP-TRAPS IN SURFACE SEWERS

In New Orleans snap-traps were placed under the culverts in the surface storm-water sewers. An observer will note that a mouse or rat usually runs along the edge of a wall; therefore the trap is placed against the wall and not at some distance from it.

city had 50 dozen brooms, worth $2.50 a dozen, destroyed, and another had $500 worth of fine china broken in a single night. A harness dealer lost $400 worth of horse collars in a season. Mail sacks and other bags of all description have holes cut in them, and ivory on shipboard or on the docks is gnawed and its value seriously reduced.

In addition to the losses of foodstuffs and merchandise, rats seriously injure buildings, sometimes by burrowing and persistent gnawing almost destroying the foundations. They cut holes in the floors, walls, doors, as well as in chests, wardrobes, bookcases, and closets.

Through rat infestation buildings are sometimes rendered uninhabitable, forcing the tenants to abandon them and causing heavy losses to the owners. An entire block of small houses in Washington was deserted for this cause, resulting in the loss of $2,000 in rents. Occasionally a building is so undermined and weakened by these pests that it must be torn down.

INCREDIBLE NUMBERS IN AUSTRALIA

House mice share a world-wide distribution with rats, and, while much smaller, are to be included with the rats as wasters of food and destroyers of other commodities. Occasionally they increase in numbers until they rival the rats in their destructiveness. Any campaign for the suppression of the rat pest should, as a matter of course, include house mice.

The potentiality existing in these small animals to cause great losses of foodstuffs is now being demonstrated in Victoria and New South Wales, Australia, where during the last few months a plague of mice has developed. Enormous numbers of mice have swarmed about huge stacks containing millions of sacks of wheat, riddling the sacks and causing the stacks to collapse.

The Melbourne *Leader* of May 26, 1917, states that "in some centers the ravages of mice are so great that huge stacks erected some months ago now resemble heaps of debris." The President of the Chamber of Agriculture estimated that the loss might exceed £100,000.

In New South Wales the Wheat Board began a campaign against the mice by double fence traps. The catch for two nights in one place is reported to have

Photograph from U. S. Public Health Service

A POISON SQUAD PREPARING RATBANE

These men are spreading bread with a poisoned paste, which is very effective as a rodent exterminator. This was used successfully in New Orleans in 1914 when a plague epidemic threatened.

totaled seven tons weight of mice. At another point 56,000 mice were caught in four nights. A later report states that the mice had turned their attention to the seed in some districts where sowing had begun and as a result of their depredations further sowing operations had to be discontinued.

Dr. Danysz, of the Pasteur Institute of Paris, estimated the damage from field mice in France during 1903 to approximate £1,000,000.

HUNDREDS OF MILLIONS OF DOLLARS DESTROYED ANNUALLY BY RATS

Rats have been pests so long that they have been taken for granted by the public, much as is the weather or the forces of nature. While people are often painfully aware of individual losses, they are unaware of the vast total which these individual sums aggregate and the consequent need of community action against the authors of such far-reaching economic drains.

Denmark, one-half the size of South Carolina, estimated her losses in 1907 at about $3,000,000. The same year the losses in the rural districts of Great Britain and Ireland, not counting those in towns and on ships, were estimated at $73,000,000, and a capital of about $10,000,000 was profitably employed there in the industry of supplying means for their destruction. In 1904 the losses in France were computed at $40,000,000.

The United States has nine times the combined area of the three countries mentioned, and investigations indicate that the direct annual losses sustained here undoubtedly equal, if they do not exceed, $200,000,000, with a great additional sum in indirect losses, including the effect on the public health and commerce from the diseases carried by rats, and the necessary expenditures in combating them. The foregoing figures are based on pre-war prices and are vastly greater under present valuations.

In Europe, about 1907, after careful

Photograph from U. S. Public Health Service

THE POISON SQUAD SETTING OUT

These men, who are chosen especially for their reliability and carefulness, are setting out to distribute the poison "croutons." A record is kept of each place where poison is placed.

investigation, the estimated average annual loss caused by each rat was computed to equal $1.80 in Great Britain, $1.20 in Denmark, and $1 in France. In the United States the average is undoubtedly much larger than in any of the countries named, especially at present high prices of food and other merchandise.

There is no doubt that a very large number of rats subsist wholly on garbage and waste which is of no value, but the damage caused by rats in numerous places amounts to many dollars each a year; probably $5 a year would not be an overestimate for the average loss caused by each rat living in a dwelling, hotel, restaurant, or other place having ready access to food supplies.

Assuming, roughly speaking, that as estimated the rat population in the United States is 50,000,000 for the cities and 150,000,000 for the rural districts, it will require the destruction of property by each rat of only a little more than one-fourth a cent a day to make the aggregate great sum estimated as destroyed by these pests yearly in this country.

In 1907 a careful survey was made of the damage done by rats in Washington. More than 500 business establishments, including factories, stores, livery stables, hotels, and restaurants, were visited. As a result of this inquiry the total losses for the city were estimated at $400,000 yearly. A similar inquiry in Baltimore indicated that the annual losses in that city were about $700,000.

200,000 MEN ARE NOW WORKING SOLELY TO FEED THE RATS

A more definite idea of the losses from rats may be gained by considering what it means in human effort.

Taking the average yearly returns on a man's labor in agriculture, as shown by the census of 1910, it requires the continuous work of about 150,000 men, with farms, agricultural implements, and other equipment, to supply the foodstuffs destroyed annually by rats in the United States. In addition, rats destroy other property, mainly of agricultural origin, the production of which requires the work of about 50,000 men.

Photograph from Zuschlag

OFFICIALS RECEIVING RATS KILLED BY CHILDREN DURING A CAMPAIGN AGAINST THEM IN COPENHAGEN

"By a small reward to the juvenile members of the family for rats captured, the pests may be kept down and the primitive joys of the chase experienced by the young trappers" (see page 17).

This gives a total of 200,000 men, with their equipment, in this country, whose economic output is devoted solely to feeding and otherwise providing for rats. If a small fraction of this army and the money involved could be concentrated in a continuous national campaign against these pests a vast saving could be achieved.

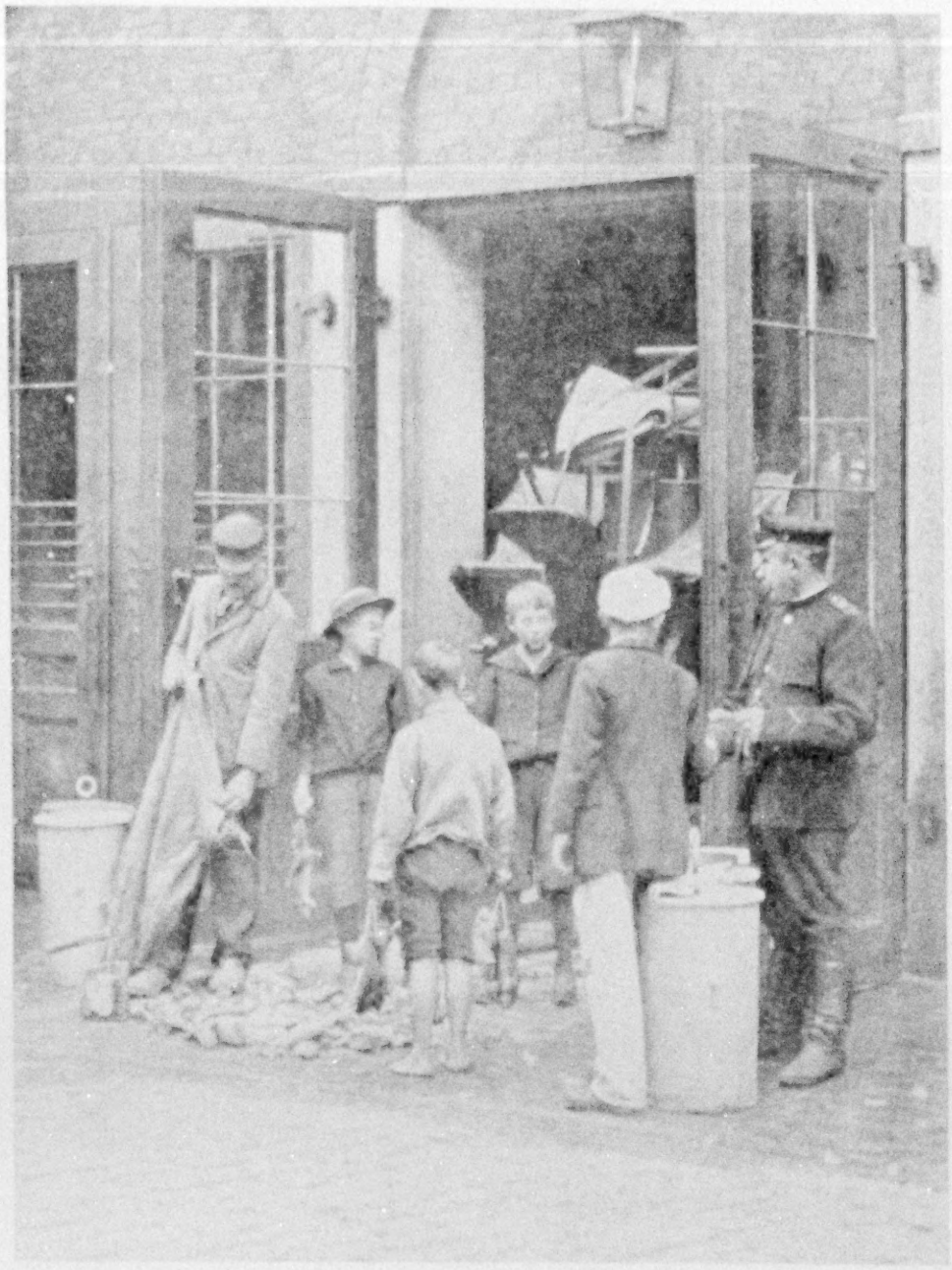
By a nation-wide effort to increase rat-proofing of structures, and to cause a stricter guardianship of food products, combined with the destruction of rats, the number of these pests could be so greatly diminished that the losses from this source would soon be reduced one-half.

Rats should be exterminated not only to stop the tremendous losses of food and other property, to which attention has already been drawn, but in order to protect humanity from some of its most dreaded diseases. It has been conclusively proved that these rodents are practically the sole distributors of the bubonic plague which is communicated to human beings from infected rats by means of fleas.

THEY SPREAD THE PLAGUE

The history of the plague runs back several centuries before the Christian era. There were particularly deadly outbreaks of it in Europe during the Middle Ages. In the fourteenth century it killed from two-thirds to three-fourths of the population of several countries, and it has been estimated that 25,000,000 people died in Europe from this disease, which was known as the "black death." Sir James Crichton-Browne, president of the Society for the Destruction of Vermin, has recorded the fact that in 1907 2,000,000 deaths from the rat-borne plague occurred in India.

The bubonic plague appears to have periods of quiescence, or what might be called periods of incubation; but it is possible that these periods of inactivity may be due to the great reduction in the rat population due to the disease. Suddenly it appears to become virulently active and spreads with startling rapidity. This accounts for its recurrence at varying intervals since the dawn of history.



Photograph from Zuschlag

RATS BEING OFFICIALLY COLLECTED IN COPENHAGEN DURING THE ZUSCHLAG CAMPAIGN

The chronicles of the sea, before the development of steam power, contain many grisly tales of plague ships drifting helplessly on the ocean, their crews stricken with the mortal disease which we now know must have been carried on board by rats. The serious menace from this source still exists in the face of all our modern knowledge.

In the fifteen years following the outbreak of plague in Canton, China, in 1894, this disease was discovered on 156 ships, and 51 countries are known to have been infected through its distribution by commerce.

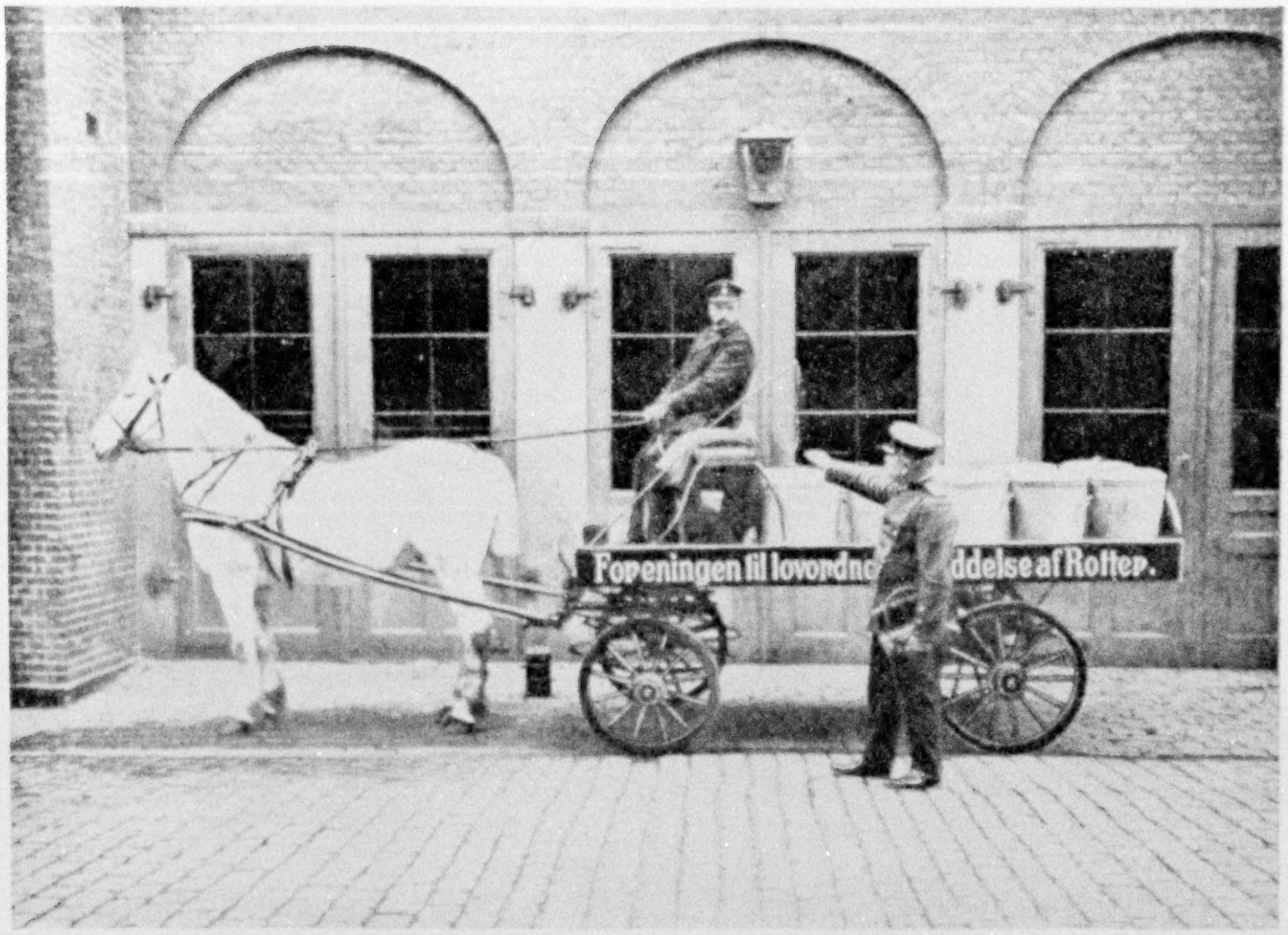
The disease was introduced into the United States at San Francisco, where, in order to control it, the United States Public Health Service made a successful campaign against rats, which resulted in rat-proofing much of the city, and thus materially bettering conditions.

Meanwhile, unfortunately, the plague-bearing rats had passed the disease on to ground squirrels living abundantly in the hills surrounding San Francisco. Owing to the wide-spread distribution of ground squirrels in the United States, their proved susceptibility to this disease greatly increases the danger of future outbreaks of the plague in this country.

When it was learned that the bubonic plague is a rat disease which is transmitted to human beings by fleas, it became possible to fight it with intelligence. Owing to the universal distribution of rats and the increase of commerce between communities, the need of incessant vigilance to guard against sudden outbreaks of the plague is evident.

Only through the elimination of these rodents, or a very great reduction of their numbers and their control, can the world feel secure from this dread disease. Although the upkeep of quarantine precautions and other defensive measures against rats in the ports of the world, as well as in interior cities, amounts yearly to a great sum, it is worth all it costs.

In addition to transmitting the bubonic plague, the house rat is known to convey infection of trichinosis, septic pneumonia, epidemic jaundice, and rat-bite fever. It is also afflicted with rat-leprosy, a disease so like human leprosy that they are scarcely distinguishable, and the relation-



Photograph from Zuschlag

OFFICIAL RAT-COLLECTING WAGON IN COPENHAGEN DURING THE PUBLIC CAMPAIGN AGAINST THESE RODENTS

ship of the two is still undetermined. Owing to the fact that rats haunt drains, garbage deposits, and other accumulations of filth, it is unquestionably a potential distributor of diphtheria, typhoid, scarlet fever, and infantile paralysis.

THIEVES OF FERTILE BRAIN

Since the early days rats of one species or another have been a burden to mankind.

The burdensome abundance of rats in Europe during the Middle Ages is indicated by the numerous legends which have come down from that time. The popular folk tale of the Pied Piper of Hamelin and its variants originated in the thirteenth century. The tales of wicked men being devoured by swarms of rats sent as a punishment for their misdeeds and the account of the death of Bishop Hatto by an attack of these rodents in a tower where he had taken refuge run back to the tenth century.

They were such persistent pests at that time and so difficult to control that many efforts were made to rid communities of them. They were anathema and persistent efforts were made to ban them by bell and book, as well as through exorcisms and other mystic ways of the "Black Arts."

A translation of an old Gaelic exorcism against these rodents might well express the farmers' feelings at the present day. One stanza reads:

"No corn in sheaf, nor barley snugly stacked,
Could serve thy turn; but all my garnered grain,
In well-filled sacks, is next by thee attacked.
And all is spoiled, thou thief of fertile brain;
And all my sacks are nibbled, too, and holed—
A sight most aggravating to behold."

In 1745 the first modern attempt to control the rat pest by law was made in the English colony of Barbados, in the West Indies. Another law was passed in 1880, on the West Indian island of Antigua.

Since that date increasing appreciation of the enormous economic losses caused by these animals, as well as the discovery that rats are primarily responsible for the distribution of bubonic plague and other

Photograph from U. S. Public Health Service

RAT-PROOFING OLD WOODEN STRUCTURE: NEW ORLEANS

A cement wall sunk in the ground two feet and extending one foot above will shut out rats from harboring places in many structures

diseases, has led to much and increasing agitation against them, and to the passing of many laws and regulations for their control.

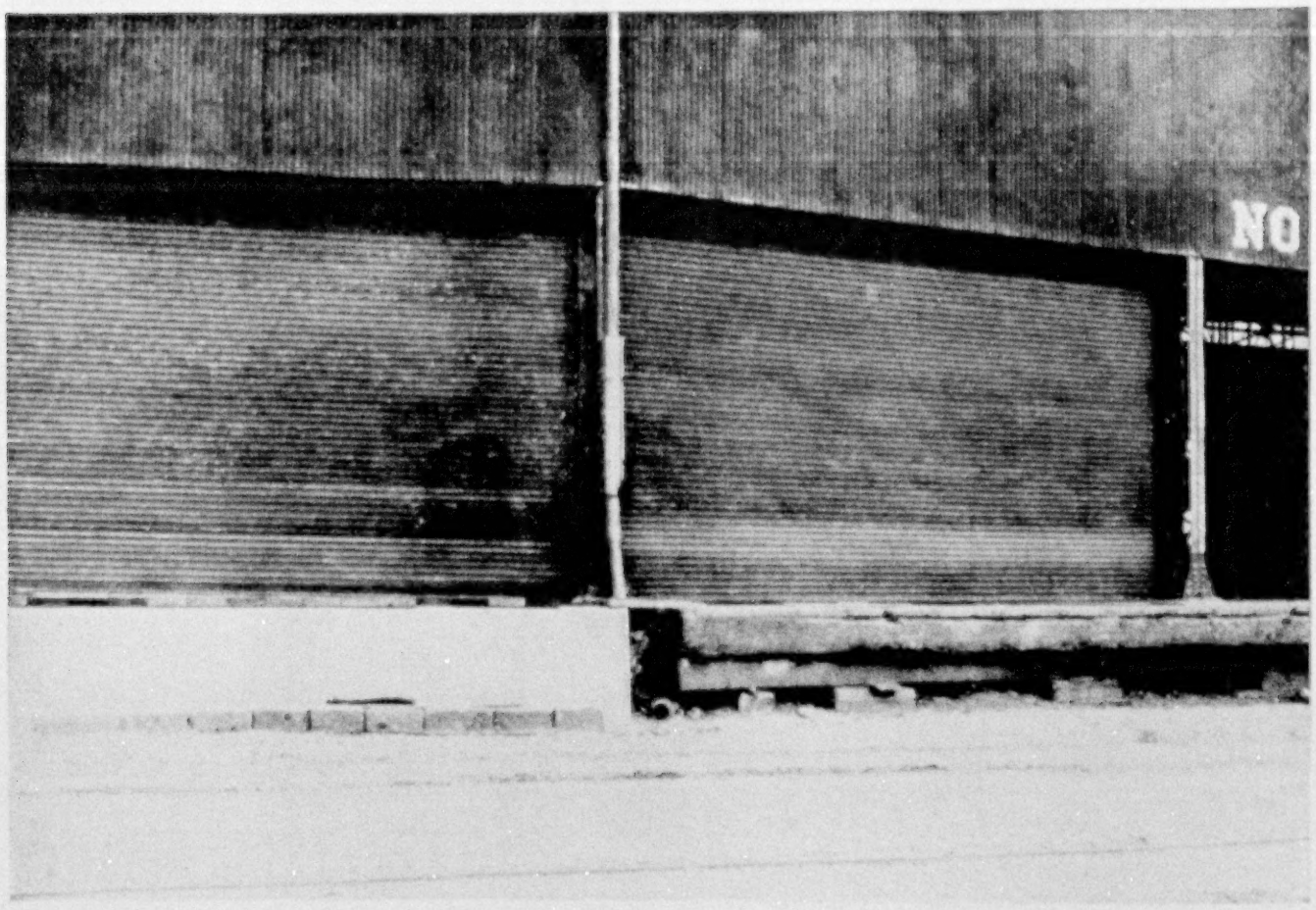
Emil Zuschlag, a Danish engineer who had studied and become thoroughly impressed with the great economic waste produced by rats and mice, organized a Danish society which had a membership of more than two thousand men of standing and influence for the purpose of combating these rodents. The activities of Zuschlag and the proof he gathered of the enormous destructiveness of rats led to the passage, in 1907, of the Danish rat law. Zuschlag also formed a second society, entitled "L'Association Internationale pour la Destruction Rationelle des Rats," in which every country of Europe was represented officially or otherwise except Great Britain. In the latter country was organized for a similar purpose "The Incorporated Society for the Destruction of Vermin." Subsequently, England and other countries in Europe and elsewhere passed laws promoting the destruction of rats.

THE OPPORTUNITIES FOR OUR CITIZENS

Rats have been for so long a time a part of man's environment that he has finally come to accept them more or less as a matter of course. As the result, notwithstanding the enormous losses from them, it is difficult to awaken the vast majority of the public to the gravity of the situation in order that a continuous and earnest campaign may be made for their suppression.

Rats are quickly responsive to the conditions of life in every locality, and where poorly kept buildings exist and food is plentiful they will continue to abound. The householders or community abolishing sheltering places of rats and guarding food supplies from them, and trapping the resident animals, will soon have a marked diminution in their numbers.

They will, however, continue to be annoyed by the inroads of rats from neigh-



Photograph from U. S. Public Health Service

A RAILROAD WAREHOUSE IN NEW ORLEANS

Showing method of rat-proofing by a concrete wall. The part not walled is a sample of conditions which are ideal for the rats.

bors, thus strongly evidencing the need of a still wider campaign against them. Any person failing to abolish rat shelters on his property is maintaining a public nuisance, menacing not only his own property and the health of his family, but that of his neighbors and the community at large.

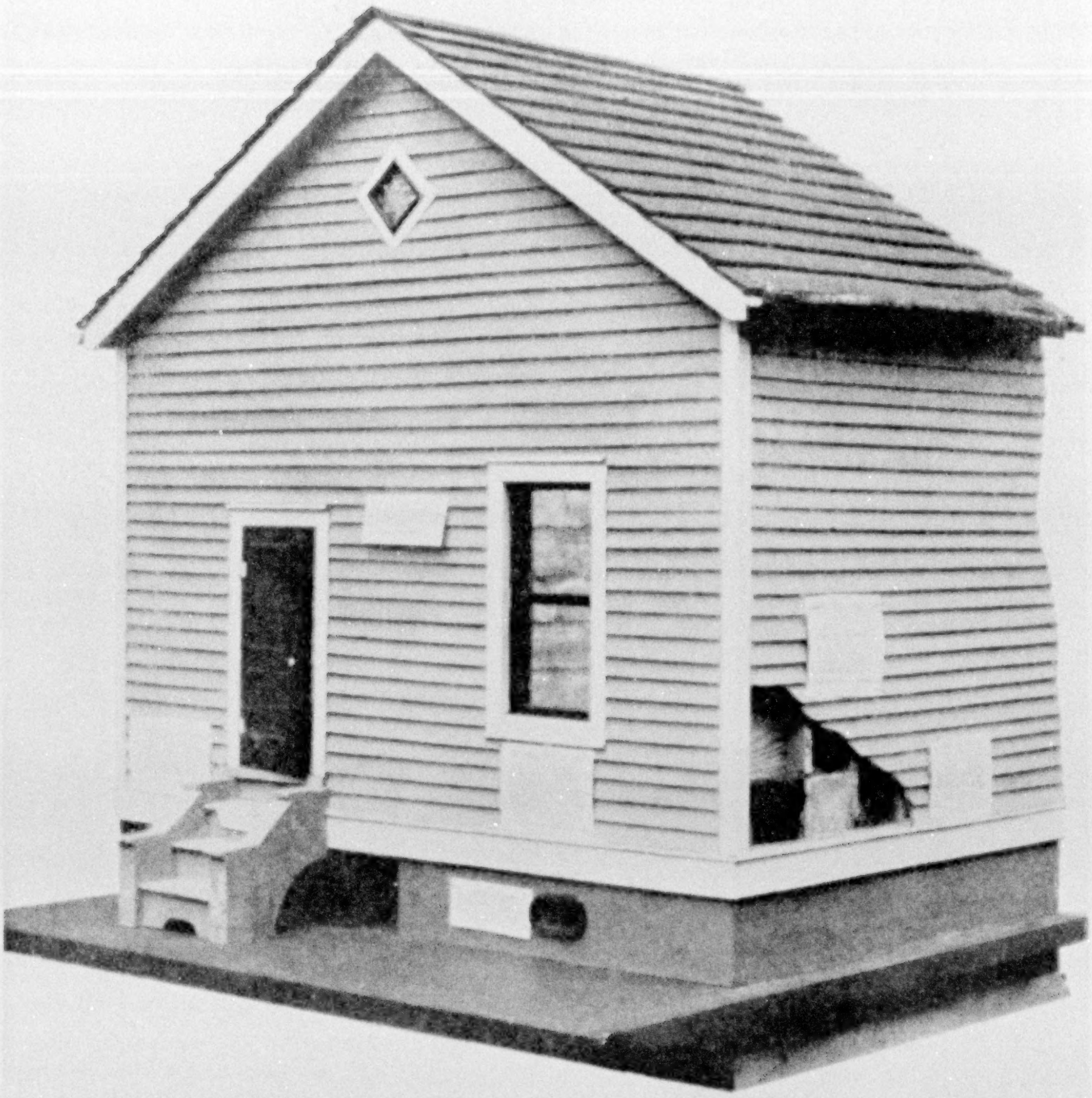
On premises where rats occur traps should be used persistently to keep down the number, as they will continually come in from elsewhere. By a small reward to the juvenile members of the family for rats captured the pests may be kept down and the primitive joys of the chase experienced by the young trappers. The popular estimate of the usefulness of cats and ferrets in catching rats and mice is very much exaggerated.

The personal relief to be had by persistently trapping rats on the premises is indicated by the results at a suburban summer home near Washington, where from fifty to sixty (and several hundred mice) are captured each year. Without this reduction in numbers rats would increase and render conditions extremely burdensome.

Civic organizations which desire to better conditions in their communities have no more fertile field before them than that of controlling rats among the markets and establishments dealing in produce and other food in their cities. A large part of the food supplies of nearly all of our communities is handled in places swarming with rats and mice.

Produce dealers are usually located on contiguous premises, usually in old buildings under which the ground is honeycombed with rat burrows and the walls are so riddled with holes that rats pass freely from store to store through entire city blocks. Here meats, poultry, fish, fruits, and vegetables are dealt with in great quantities. For a large part of each day rats in almost unlimited numbers swarm in and over this food, eating some of it, and polluting quantities of it which pass on to the consumer.

These repulsive conditions prevail largely because property owners desire to avoid the expenditure necessary to rat-proof buildings. This could be done at so small a cost that it is a discredit to civilization that communities of intelli-



Photograph from U. S. Public Health Service

MODEL OF RAT-PROOF HOUSE

These diminutive buildings, designed by the U. S. Public Health Service, are used in instructing the general public how to comply with the rat-proofing ordinances, which have been adopted in many American cities since Surgeon General Blue's epoch-making work in California. Note how the underpinning of the doorstep is cut away so that rats and mice can find no shelter underneath. There is a heavy wire grating over the ventilation opening in the foundation wall and a section of the side wall is cut away to show the brick or concrete "stop" between the joists to prevent rats from getting into the box between the outer and inner walls and there having safe harborage.

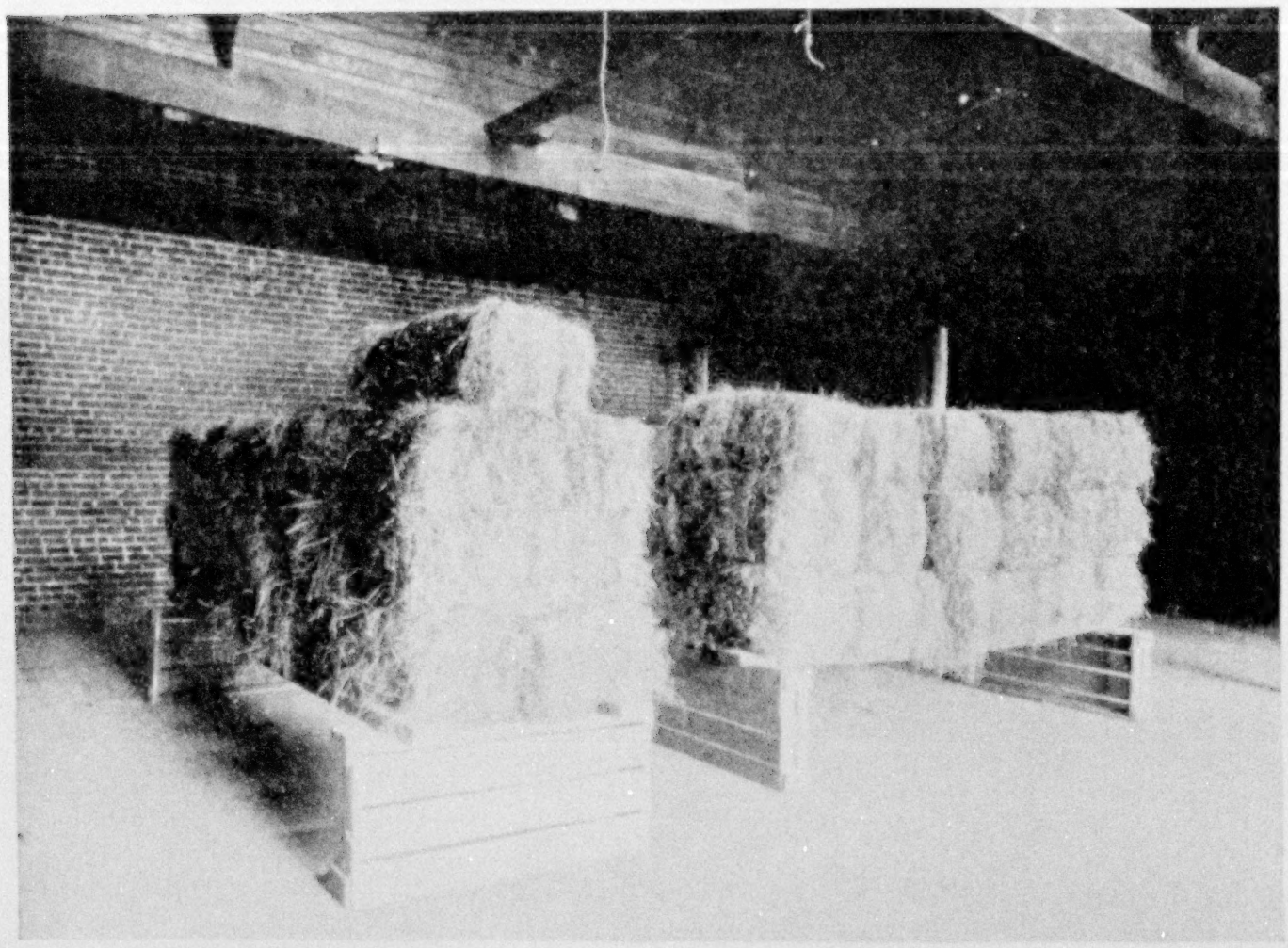
gent people should tolerate such unsavory and unhealthy conditions.

OUR U. S. PUBLIC HEALTH SERVICE LEADS THE WAY

Ordinances should be passed and rigidly enforced forever to end this situation. The cost of the proper rat-proofing measures would quickly pay for itself in the saving of foodstuffs, and would warrant increased rent to the owners, in addition to conferring a lasting benefit on the communities involved.

Surgeon General Blue's dictum that "rats must be built out of existence" well indicates the importance of rat-proofing in the war against these rodents.

One of the most effective campaigns



Photograph from U. S. Public Health Service

RAT-PROOFING BARNS AND STABLES BY ELEVATION OF CONTENTS

The baled hay in this case has been raised so as to give rats no place to hide

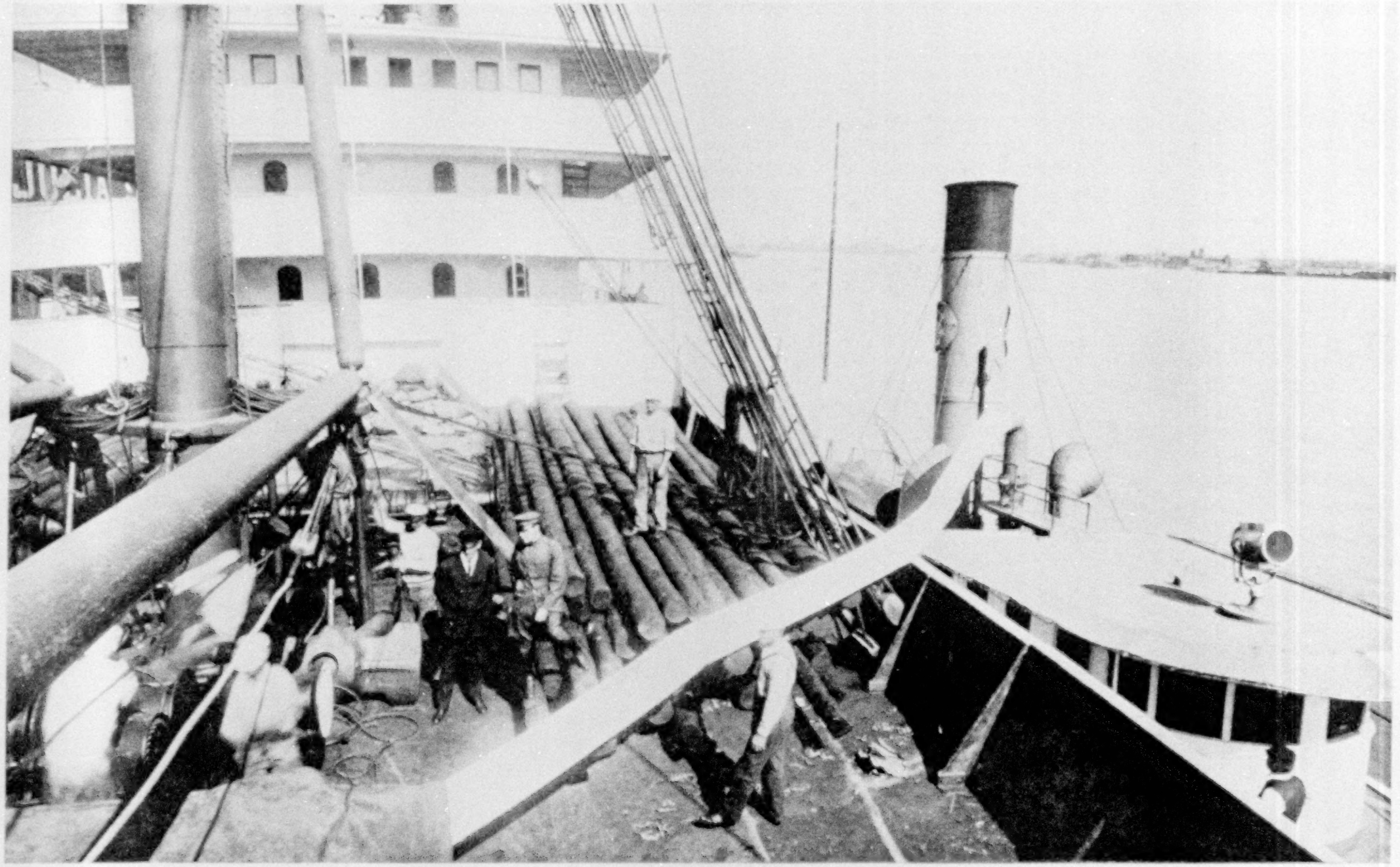
ever conducted against rats has been that of the United States Public Health Service for the purpose of eradicating bubonic plague from San Francisco and New Orleans and to prevent its gaining a foothold in other American ports, but the results were much less than they might have been with more extended coöperation.

Zuschlag and others who have given the rat question serious study have agreed that it will be extremely difficult to secure the far-reaching results so desirable in the control of this public menace except by international action. The fact that when rats are destroyed in one area they tend to reinfest it from surrounding regions greatly lessens the effectiveness of local campaigns. For this reason, while local campaigns are useful and extremely desirable in relieving local conditions, the final great public relief will come when the campaign is broadened to international proportions.

At this time, when all civilized nations are care-ridden with the fear that gaunt Hunger may stalk through the world, it is essential that foodstuffs be safeguarded as never before. To accomplish this the main sources of preventable waste should be located and controlled. The foregoing pages have shown that among these elements of waste the house rat stands preëminent and deserves the most serious attention.

RATS SHOULD NOT BE TOLERATED AT A TIME WHEN THE ENTIRE WORLD FEARS A WORLD FAMINE

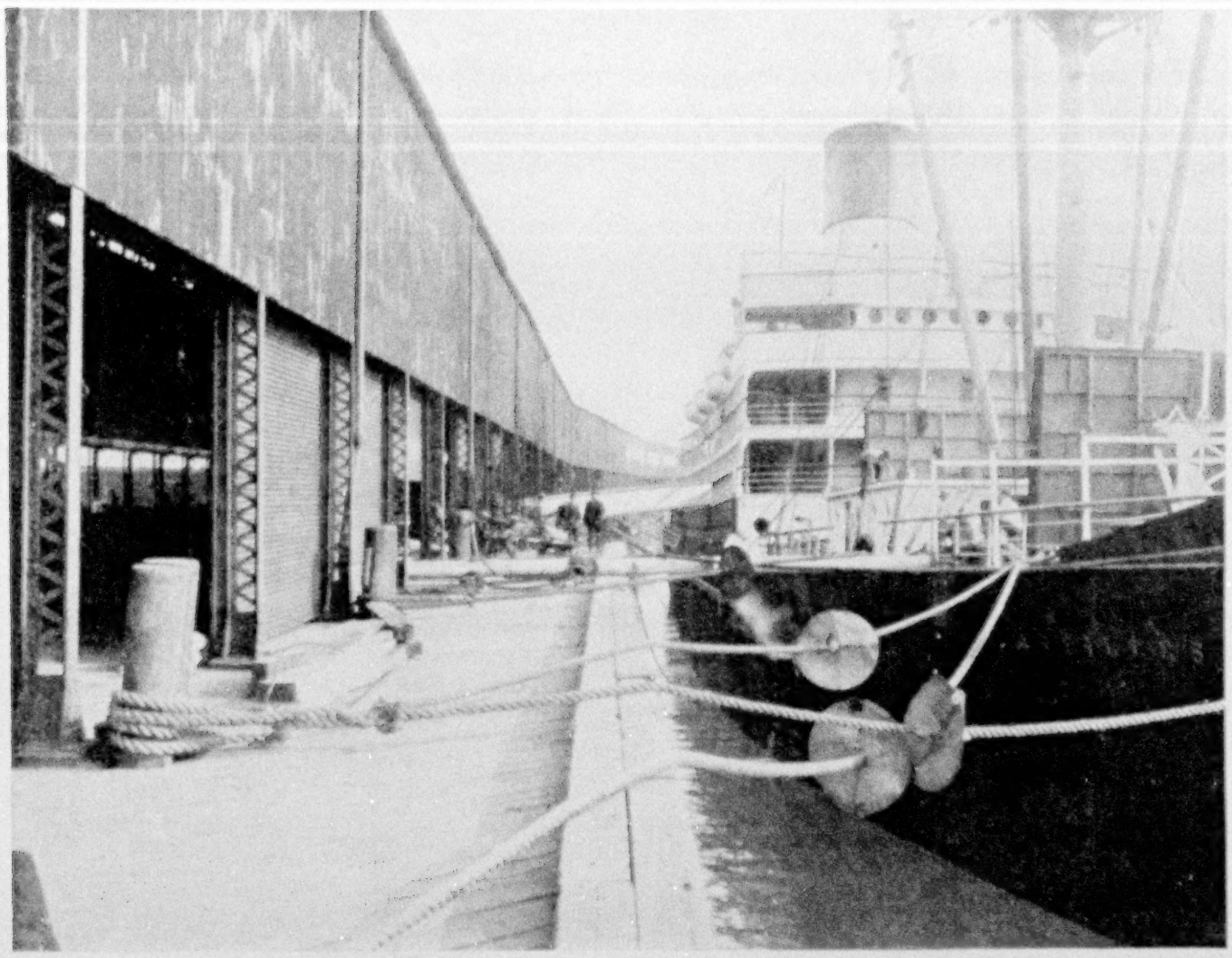
The remedies against this pest are comparatively simple and may be put in effect to advantage by every householder, as well as by mercantile establishments and organizations. For modern communities to continue to harbor these loathsome parasites is merely to prolong the survival of careless methods of individual and community housekeeping incident to barbarous times. Every health officer and every well-informed person knows the extending menace these pests present to himself and neighbors. Why, then, should we not cease feeding and sheltering them?



Photograph from U. S. Public Health Service

FUMIGATING SHIPS WITH CARBON MONOXIDE TO DESTROY THE RATS

Funnel gas from the Public Health Service tug, which would otherwise be wasted, is washed, cooled, and pumped into the holds of ships to kill the rats. It does not harm the cargo, but is very destructive to the rodents. This is done when the ship comes into port and before the cargo is unloaded. "All ships engaged in sea-going, coastal, and inland waterway traffic should be fumigated at stated intervals for the purpose of destroying the rats which harbor in them and are thus transferred from place to place" (see text, page 23).



Photograph from U. S. Public Health Service

GUARDS PLACED ON THE HAWSERS TO KEEP RATS FROM BOARDING THE SHIP

On the lines by which a ship is tied up to the wharf are placed metal disks which look like the "messengers" boys send up on kite strings. These disks are two feet in diameter and prevent rodents from landing or taking passage by way of the hawser. The ship is "breasted off" with a spar, seen in the background, which is also guarded by a similar sheet of metal. As an additional precaution, the gang-plank is painted white for a space of twenty feet. This is guarded by a quartermaster when in use and elevated when not.

It should be kept in mind that so long as good shelter and plenty of food are available rats will thrive and increase. Under such conditions trapping alone will be ineffective, since unless otherwise controlled the supply of rats will be inexhaustible. Use concrete, wire netting, and sheet metal to rat-proof buildings, and keep food and foodstuffs within rat-proof containers (or buildings), and the number of rats will naturally diminish. Then by means of traps or poison the survivors can be readily eliminated from the premises.

Rat-proofing in some degree, as well as extra care in safeguarding food supplies, whether in the granary or pantry, should accompany all efforts to eliminate rats. By these methods the householder may free himself from their obnoxious presence.

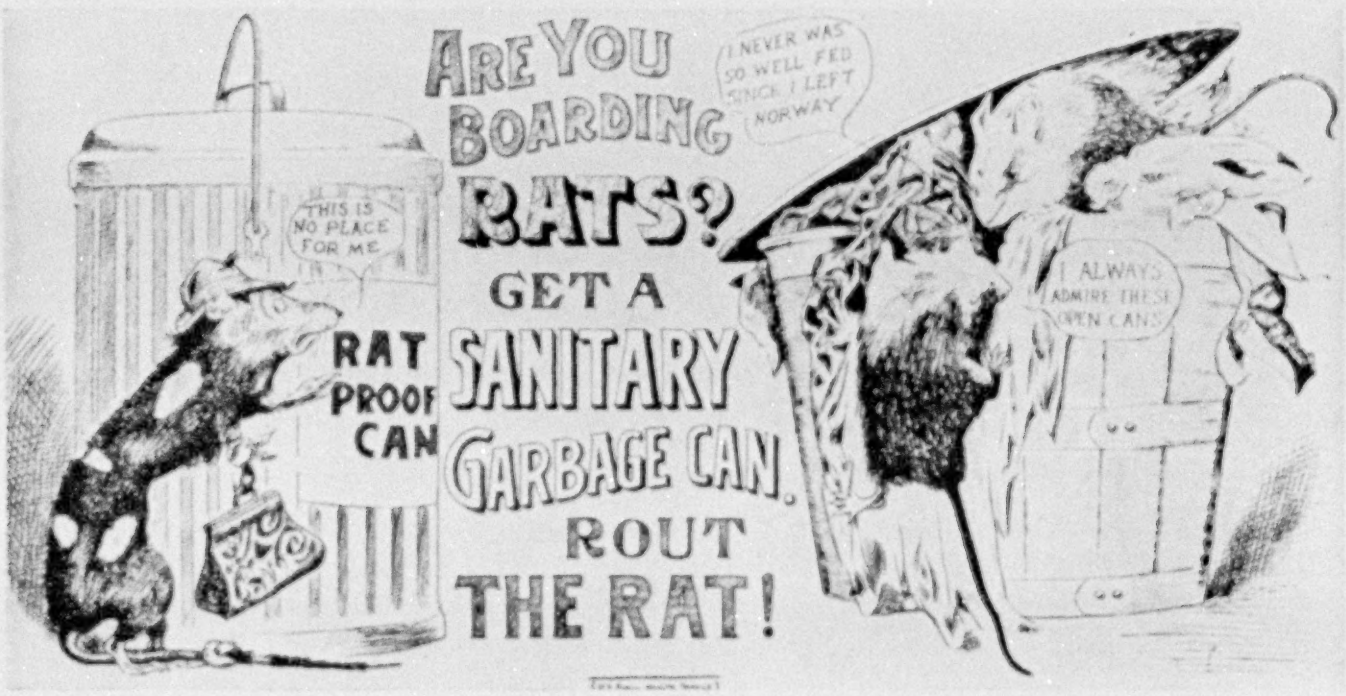
It may be stated here that many claims have been made as to the effectiveness of different serums and viruses for the destruction of rats by spreading contagious diseases among them; but extended experiments, particularly in this country, have, so far as the writer is informed, failed absolutely to give the desired results. The reliable and successful remedies lie in the use of concrete and other modern building materials, with effective traps and poison used thoroughly in active, individual, community, and national campaigns.

ORGANIZED EFFORTS ARE NECESSARY

The only really satisfactory way of handling the rat problem is by organized efforts. This is particularly true, owing to the fact that even with all property owners doing their duty many public and

XUM

RAT PROOF BOARDING HOUSE
NOTHING DOING IN THERE!
COME AWAY FROM THAT RAT PROOF PLACE!
IS YOUR HOUSE RAT PROOF?
ENTRANCE TO PANTRY


THIS IS NO PLACE FOR ME
RAT PROOF CAN
ARE YOU BOARDING RATS?
GET A SANITARY GARBAGE CAN. ROUT THE RAT!
I NEVER WAS SO WELL FED SINCE I LEFT NORWAY
I ALWAYS ADMIRE THESE OPEN CANS

Photographs from U. S. Public Health Service

STREET-CAR POSTERS USED IN NEW ORLEANS DURING THE RAT CAMPAIGN BY THE U. S. PUBLIC HEALTH SERVICE

semi-public places will remain to be treated. Here is where civic organizations, including boards of trade, may take leading parts. Rat-proofing and the formation of rat clubs for killing these rodents may be promoted in addition to encouraging individual efforts. The following suggestions are for action along these lines:

1. The public may be educated in methods of rat-proofing, protecting food supplies, and trapping and poisoning rats and mice.

2. Funds may be raised for the payment of premiums or prizes for killing rats in contests arranged under local organizations or committees.

3. The campaign can be enlarged by civic organizations, not only securing neighborhood action, but by their assistance in bringing about more general action.

4. Voluntary coöperation for the public welfare in this matter should bring about municipal ordinances as well as State and National legislation. A begin-

ning of such legislative action has been made in the United States, notably in New Orleans and San Francisco.

The State of Indiana has a drastic law providing for the destruction of rats on all premises, and giving the Governor authority to set aside one "rat day" in spring, when the public should join in a general effort to destroy these pests throughout the State. Unfortunately this law makes no provision for rat-proofing as well as killing rats, and until amended will be seriously defective. Meanwhile, through lack of proper public sentiment behind it, the law is not being enforced.

Measures for the control of rats should provide for certain fundamental requirements as follows:

New buildings should be made rat-proof under rigid inspection.

Existing rat-proof buildings should be closed to rats by wire mesh or fine grating over all windows and doors accessible to them. Old buildings not rat-proof should be remodeled and concrete, wire mesh, and other material used to render them practically rat-proof.

Harboring places, such as old sheds, piles of trash, old lumber, wooden sidewalks, open stone walls, and garbage dumps, should be abolished.

All garbage and food waste on which rats may feed should be protected from them and promptly removed.

All markets and other public buildings should be promptly rat-proofed and frequently inspected.

All ships engaged in sea-going, coastal, and inland waterway traffic should be fumigated at stated intervals for the purpose of destroying the rats which harbor in them and are thus transferred from place to place.

So-called civilized man has had with him from barbarous times a variety of vermin, including insects and mammals, nearly or quite all of which are carriers of deadly diseases. Only within a comparatively few years have advancing knowledge and public sentiment combined to bring about any considerable efforts to subdue and eliminate these pests. The public is rapidly awakening, however, to the dangers involved in them and is becoming more and more determined in its efforts to control these causes of enormous losses, both in property and human life.

Through the efforts of Dr. L. O. Howard and others, the house fly—the "typhoid fly," as it has been well termed—is now under the ban of general public disapproval.

The Spanish War developed the fact that the mosquito was the carrier of yellow fever. Another type of mosquito is known to be the carrier of malaria. The European War has brought to almost universal public knowledge the fact that body lice are carriers of the deadly typhus, and many diseases are known to be carried by other insects.

Among these deadly carriers of death and destruction none equals the house rat in its tremendous drain on the prosperity of nations by its destruction of food and other property, while at the same time it is the deadliest of all to mankind as a disease carrier. Within historic times it has caused the death of untold millions of human beings and its devastations are still in progress.

There is little doubt that the time will arrive in the not distant future when persons maintaining rat-breeding resorts on their premises will be looked upon with the same disfavor that now visits those who harbor vermin of a lowlier degree.*

*A bulletin giving brief practical advice for rat-proofing structures and for destroying rats has been published for distribution by the Biological Survey, U. S. Department of Agriculture, Washington, D. C. Written inquiries for expert information on these subjects may be directed to the same address.

XUM

RUSSIA'S MAN OF THE HOUR

Alexander Kerensky's First Speeches and Proclamations

THOSE who, like Plutarch, seek for parallels in the lives and characters of men whose genius directs the fate of nations, will find many interesting points of similarity between the Man of Destiny of the French Revolution and the Man of the Hour in Russia's day of liberation from the oppression of autocracy. Napoleon was in his 31st year when he became First Consul of the French Republic; Kerensky, premier of the Russian cabinet and now exercising the powers of dictator in order to restore order in the empire, is just 36.

Throughout his career Napoleon suffered from an incurable internal malady, supposedly cancer of the stomach; Kerensky is also tortured by a disease (supposedly tuberculosis of the liver) which prevents his working at fever heat more than a few weeks at a time; then he is forced by weakness to recuperate for three or four days in a sanitarium in the Crimea.

Napoleon's judgment of men was instant and almost infallible; Kerensky is reputed to possess the same faculty to a marked degree.

The accompanying addresses and proclamations, translated for the NATIONAL GEOGRAPHIC MAGAZINE from official copies in the offices of the Russian Embassy at Washington, are their own best commentary on the incisive, forceful style of Kerensky, the impassioned orator. His exhortations to the soldiers of the new Russia have much in common with the inspiring appeals of Napoleon to his troops before the Battle of the Pyramids and elsewhere.

In personal appearance Kerensky is described as a man of medium height, with close-cropped brown hair, flashing brown eyes, and a face which in repose has a strained, almost embittered, expression, but which lights up magically with a broad, generous smile.

Recent pictures of the premier show his right arm in a sling, but no news has been allowed to pass the Russian censor as to how the nation's foremost revolutionary figure was injured, whether by a bullet at the front or by the attack of some anarchistic enemy among his own people.

The Provisional Government of Russia came into existence on March 14, 1917, as a result of agreement between the Executive Committee of the Duma and the Council of Workmen and Soldiers. The new government was composed mainly of representatives of Liberal political views—the views of the Russian middle class.

Alexander Kerensky, who was the only member of the Provisional Government to represent the Socialist parties, took the portfolio of Minister of Justice. He appeared as the link between the government and the broad Russian masses.

Immediately following the announcement of the organization of the Provisional Government, Kerensky delivered two addresses—one before the Council of Workmen and Soldier Deputies and the second before a mass meeting of soldiers and citizens gathered in front of the Duma. In these speeches the Minister explained the motives which induced him to become a member of a cabinet composed mainly of representatives of the middle-class parties.

SPEECH BEFORE THE COUNCIL OF SOLDIERS AND WORKMEN

"Comrades, do you believe me? Do you have faith in me?" (*Cries from every part of the chamber, "Yes, we have! Yes, we have!"*) "I speak, comrades, from the very depths of my heart. I am ready to die should it become necessary." (*General excitement and a great deal of applause, followed by a continuous ovation.*)

"Comrades, in view of the organization of the new government, I felt it my duty

© International Film Service

ALEXANDER FEODOROVITCH KERENSKY (IN THE AUTOMOBILE), AS MINISTER OF WAR, REVIEWING RUSSIAN TROOPS AT THE FRONT

"On the tips of your bayonets you will bear peace, right, justice, and fair play; in straight ranks, strengthened by discipline of duty and undying love to the revolution and country, we will go forward, free sons of Russia." In these words Russia's Man of the Hour inspired the republic's army to assume the offensive.

immediately, without awaiting your formal sanction, to reply to the invitation extended me to assume the responsibilities as Minister of Justice." (*Stormy applause.*)

"Comrades, representatives of the old government are now in my power and I have made up my mind not to give up control over them." (*Loud applause, cries "Correct."*) "I received the invitation and became a member of the Provisional Government as Minister of Justice." (*Applause and cries "Bravo!"*) "My first step was the issuing of an order calling for the immediate liberation of all political prisoners, without any exception; also that our comrades, the deputies of the social democratic faction now in Siberia, be escorted here with honors." (*Thunderous applause and great enthusiasm.*)

"In view of the fact that I have assumed the responsibilities of the Minister of Justice prior to receiving your formal

sanction, I now resign as vice-chairman of the Council of Soldiers and Workmen; but I stand ready to again assume that title should you find it necessary." (*Applause and cries, "You are welcome to it!"*)

"Comrades, having entered the cabinet of the Provisional Government, I remain the same man as I was—I remain a republican." (*Loud applause.*) "I made it plain to the Provisional Government that I appear as a representative of democracy, and that the Provisional Government must regard me as the spokesman of democracy's demands. Comrades, time is not waiting. Every minute is dear. I call you to organization, discipline; I ask you to extend help to us, your representatives who are ready to die for the people."

SPEECH TO THE SOLDIERS AND CITIZENS

"Comrades, soldiers and citizens, I am the member of the Duma, Alexander Kerensky, Minister of Justice." (*Loud and enthusiastic cheers.*) "I declare in the presence of all of you here that the new Provisional Government has assumed its responsibilities and duties in agreement with the Council of Soldiers and Deputies.

"The agreement made between the Executive Committee of the Duma and the Executive Committee of the organization of Soldier Deputies has been approved by the Council of Workmen and Soldier Deputies with a majority of several hundred against fifteen." (*Great applause and cries "Bravo!"*)

"The first step of the new government is the immediate publication of the act of full amnesty. Our comrades of the second and fourth Duma, who were illegally sent to the wilderness of Siberia, will be immediately liberated and brought here with honors.

"Comrades, in my power are now all the representatives of the ex-Council of Ministers and all the ministers of the old order. They will answer, comrades, for all crimes committed by them before the people in accordance with the law." (*Cries "Without mercy!"*)

"Comrades, free Russia will not stoop to those humiliating means of struggle which characterized the acts of the old régime. No one will be punished without trial; all will be judged in an open peoples' court.

"Comrades, soldiers and citizens, every step taken by the new government will be public. Soldiers, I beg of you to coöperate. Free Russia has become one, and no one will succeed in tearing freedom from the peoples' grasp. Do not mind the exhortations coming from the agents of the old order. Pay attention to your officers. Long live free Russia!" (*Thunderous applause and cries "Hurrah!"*)

THE FIRST PROCLAMATION OF THE MINISTER OF JUSTICE TO THE PEOPLE

"Citizens! So far every order coming from the Provisional Government, and having in view the complete defeat of the old regime and the establishment of the new order, has been executed by the people without bloodshed. The honor of the nation demands that the first radiant days of liberty be not befogged by thoughtless and intolerable acts of violence: such acts must be avoided in spite of the natural unrest of citizens.

"Conscious of the greatness of the moment, all citizens must voluntarily take all the necessary steps tending to preserve the liberty of every individual without the slightest exception. Be it known to all that the guilty will be put to just trial, which will result in punishing all according to their deserts.

"Citizen A. KERENSKY,
"Member of the Duma,
"Minister of Justice."

KERENSKY AT MOSCOW

A few days following the organization of the Provisional Government, Kerensky, at the instance of the government, visited Moscow. His arrival there was the occasion of many demonstrations and festivities given in the honor of the new order and the Provisional Government. In reply to the greetings and addresses made at his reception, Kerensky spoke as follows:

"I can scarcely find words in reply to your greetings, addressed through me to

Photograph by George H. Mewes, courtesy of London Daily Mirror

WATCHING THE GERMANS FROM AN OBSERVATION POSITION

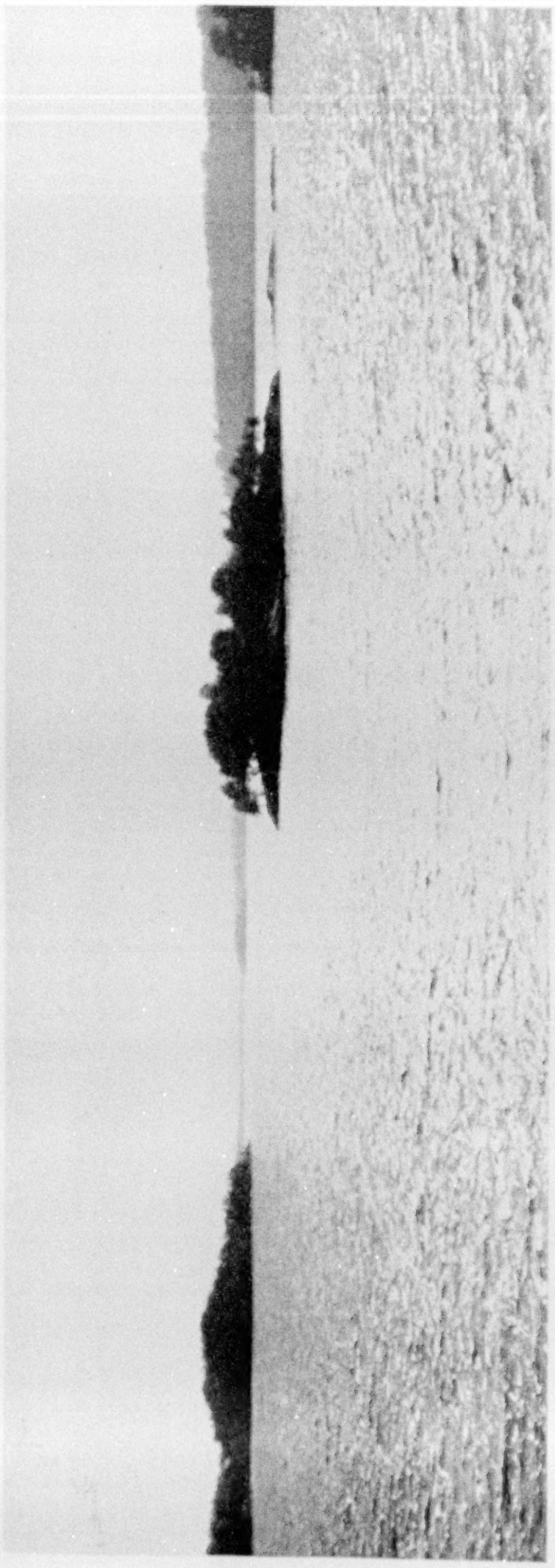
The General of Division thinks he has located a battery of 12-inch Skoda howitzers and has asked his aide to have a look

the Provisional Government. What I have lived through during those days of grandeur! I have always fulfilled my duty, and if I have done what I have done, it was only because I knew that the Russian people is a great people; that the Russian democracy is a great democracy. I am here as her tool, and by reason of this I am happy. I act because of my faith in the people and democracy. I step firmly along a great wide road because I well know the workingmen, the peasantry, and the whole people.

"I am here in the name of the Provisional Government, which came into being and assumed the great governmental powers, called forth by the people and the Duma. I come here bearing greetings. I came here to let it be known that we are placing ourselves at the disposal of the entire nation, and that we will fulfill the will of the people to the very end, up to the time of the assembling of the Constitutional Assembly. I came here to ask of you, Shall we go to the very end?"

DOES NOT WANT TO BE THE MARAT OF THE RUSSIAN REVOLUTION

At one of the numerous mass meetings held in Moscow in Kerensky's honor he was asked about the fate of the Russian dynasty. In reply the youthful minister said:



THE COAST OF FINLAND, NEAR HELSINGFORS

Photograph by Gilbert H. Grosvenor

The shores of Finland bordering on the Gulf of Finland are dotted with many hundreds of small rocky islands. There are also many submerged rocky ledges. The gulf is about 250 miles long from its head near Petrograd to the sea, and about 40 miles wide between Helsingfors and Reval.

"Nicholas II is resigned to his fate and has asked the help of the Provisional Government. I, as Minister of Justice, am holding his fate, as well as that of his dynasty, in my hands; but our marvelous revolution was almost bloodless, and I do not want to be the Marat of the Russian revolution. There should be no place for vengeance."

ADDRESS TO THE ARMY, CONCERNING THE PROBLEMS OF THE PROVISIONAL GOVERNMENT

Soon after the organization of the Provisional Government, Petrograd became the Mecca for numerous delegations sent from the front by the various parts of the army. The delegates were sent to the capital with a view of ascertaining the program of the Provisional Government, as well as the government's relation to the Council of Workmen and Soldiers. One of these delegations Kerensky addressed as follows:

"The greatest problem facing the Provisional Government at this time is to uphold the unanimity of mind and action of the Russian nation at this the crucial hour of our lives. At the present moment nothing threatens the solution of the problem. Between the Provisional Government on the one hand and the Council of Soldiers and Workmen on the other, there is today full unanimity both as regards problems and aims. If there is some disagreement, it only relates to questions of tact, to questions of what can be done today and what may be postponed until tomor-

row. But these tactical differences are at present being gradually overcome and will, I hope, all be overcome by mutual consent.

"The Provisional Government has at its command full governmental powers.

"But in solving our problems we are in need of criticism and control; therefore do not be dismayed and do not think that criticism and control by the public is interfering with our work. We are the more in need of control and criticism by the Council of Soldiers, Workmen, Peasants, and Officers' Deputies, because they all represent the people and the Russian democracy.

"It may be that you are somewhat disturbed by noisy agitations. Certain words appear to be the evil of the day. But we, the Provisional Government, are not in the least dismayed by such manifestations.

"We believe in the common sense, in the iron will of the people—to march to salvation and not to ruin, because no one desires to bring about his own ruin. We believe that in the end constructive problems and not isolated party slogans will triumph.

"If we do not at this moment give the army all that it needs it is not because we do not want to, but because we cannot.

"The old régime has left everything in a state of chaos; coal has disappeared from the market, metals have disappeared, and the population was starving. Money was dwindling down in value, the nation was being impoverished, and this brought about the high prices. In this shape we have come unto our inheritance.

"However, we assume the responsibility because we believe that the people will understand the impossibility of creating at a moment's notice all from nothing. We believe that the people, having become the master, will endeavor to grasp the cause of the country's needs. Our belief has not deceived us; the people have without hesitation set about organizing life. And the army does not as yet get all; but still it already gets more than has been the case under the old régime.

"As to the agrarian question, all that I can say is that by reason of my views and convictions I am in sympathy with the slogan, 'Earth and Liberty.' The people must get Earth and Liberty in their full scope. In this respect the Provisional Government has committed itself through 'definitely' assumed obligations. We feel it is our duty to state that the question of the new forms of land ownership can be solved by the Constitutional Assembly only.

"I assure you that the question of land will not be solved without the consent of the front.

"For centuries we have grown accustomed to wait without getting anything, and now we want to get all without waiting a single day. To transform an Asiatic monarchy into the freest republic on earth, endeavoring to avoid mistakes made at various times in western Europe, is a problem that cannot be solved in the course of a few days. The solution of the problem requires, if not years, at least several months.

"And we will effect our purpose by striving toward it with all powers at our command; but we must be on the lookout not to overreach it in our dash forward, else we are most likely to overreach the aim and leave it behind us. Therefore our nearest and primary object must be the organization of the masses.

"It is only the organized masses that march to their goal not as dreamers, but as people engaged in the erection of a new State, with full knowledge of the work at hand. Remember, that the ultimate result depends on our perseverance and power of self-control.

"You must not be dismayed by talk of a counter-revolution. No counter-revolution is possible, for the simple reason that there is no imbecile who will dare to rise against the will of the entire army, the entire peasantry, the entire labor democracy, and the will of entire Russia.

"We will attain all, provided we can grapple with the only danger facing us, provided we can battle with those who will take a notion of reaching out a hand from outside, and thus help the hidden

Photograph by Gilbert H. Grosvenor

RUSSIAN SCHOOL-BOYS IN MOSCOW

The patriarchal individual on the left is the schoolmaster, who is escorting his pupils to the historic places in the ancient capital of Russia

reaction; those who will want to vanquish the front, to vanquish liberty.

"The first word voiced by the Provisional Government concerning the war was the rejection of annexation, the rejection of aims of robbery, the rejection of that which is named Imperialism. But we demand, and we will make our demands known to those who will not listen to them, that we have a right to a free life and a right to our place on earth, which we will yield to no one.

"No soldier, no sailor of any government has the rights that you have. Outside of your regiment you are absolutely free. But great rights impose great duties. I have no doubt that you will fulfill these duties—your debt to the nation and democracy."

A LEADER WILLING TO STEP ASIDE

In spite of Kerensky's enormous popularity with the masses, his activities as a member of the Provisional Government have been frequently criticised by extremists. The criticisms were also voiced within the Council of Deputies. This moved Kerensky to address the Council as follows:

"I have heard there are rumors afloat among you to the effect that my attitude toward the old authorities and the Imperial family is gradually weakening. I have heard that there appear among you people who dare to express a lack of confidence in me.

"I warn all who speak thus that I will not permit a disbelief in me, and through me insult Russian democracy.

"I ask of you to either exclude me from your midst or to give me your full confidence." (*Great applause and cries, "Bravo!"*) "You accuse the Provisional Government and myself of being too indulgent with the members of the Imperial family; you say that we leave them free and treat them with consideration.

"I was at Tsarskoye Selo, where I met the officer in command there and spoke with the soldiers. The commandant of the Tsarskoye Selo Palace is a good friend of mine, in whom I have absolute confidence. The garrison promised me to obey all my commands.

"You doubt because there are several members of the Tsar family who are still at liberty, but at liberty are those only who in common with you have protested against the old regime and the rascalities of Tsarism. Dmitry Pavlovich is free because he, too, struggled with the old order up to the very last. He worked out a plan to kill Rasputin, and therefore he has a full right to remain an officer of the Russian army in Persia.

"Comrades, soldiers and officers, remember that the work of the Provisional Government is one of enormous responsibilities. The Provisional Government stands for liberty, right, and Russian independence, and it will stand there up to the very last. The equal responsibility for the fate of our country rests on us, on your Provisional Government. In the name of your debt to the country, we must all work together in full unity." (*Stormy applause.*) "I became a member of the Provisional Government as your representative and I endeavored to the utmost of my power to champion your interests and opinions.

"I worked for your good, and I will continue doing so as long as you believe in me and as long as you are frank with me; but there appear people who want to create enmity between us. Remember that it is the duty of all of you to continue your good work, and if you will I shall work together with you; if this be not your wish, I shall step aside. I want to know, Do you believe me or do you not?" (*Great applause, culminating in an ovation. Cries, "You are welcome! You are welcome! We believe in you!"*)

KERENSKY'S SPEECH ABOUT THE POLITICAL CRISIS

The first cabinet, as is well known, came into being as a result of a decision arrived at during a conference held between the Duma and the Council of Soldiers and Workmen Deputies. Nevertheless there was much discrepancy between this cabinet and the political status of the great mass of soldiers and workmen which today represents the backbone of the revolution. At the time when most of the ministers were representatives of the Russian middle class, belonging to her

Photograph from H. S. Cresswell

THE RUSSIAN FAMILY AT YASNAYAH POLYANAH, RUSSIA, FROM WHICH TOLSTOY OBTAINED HIS COACHMAN; THE LATTER IS THE CENTRAL FIGURE OF THE THREE MEN STANDING WITH CAPS ON

liberal parties, this the people's element was represented in the government by only one man—Kerensky.

These circumstances caused lack of confidence toward the government among the great masses and in the army. The people regarded the cabinet as composed of "bourgeois." The government had no great prestige and was lacking in power. The circumstances, however, required a strong concerted authority which would have the power to carry out all decisions arrived at. This brought about a political crisis which led to the formation of the new coalition government. During those days soldier and officer delegates from every part of the front held their first congress in Petrograd. It was before this congress that Kerensky delivered the following address:

"Two months have elapsed since the birth of Russian freedom. I did not come here in order to greet you. Our greetings have been dispatched to your trenches long since. Your pains and your sufferings were one of the motives prompting the revolution. We could no longer endure the imbecile lavishness with which the old order spilled your blood. I believed throughout the two months that the only power which can save our country and lead her on the right path is the consciousness of responsibility for every word and every act of ours—a responsibility resting on every one of us. This belief I still hold.

"Comrades, soldiers and officers, I well know what your feelings are there in the trenches, but I also know what is going on here. Possibly the time is near when we shall have to say to you, 'We cannot give you all the bread which you have a right to expect of us and all the ammunition on which you have a right to depend,' and this will not come about through the fault of those who two months ago assumed before the tribunal of history and the whole world the formal and official responsibility for the honor and glory of our country.

"The situation of Russia at present is complex and difficult. The process of transformation from slavery to liberty does not, of course, assume the form of a parade. It is a difficult and painful work, full of misconceptions, mutual misunderstandings, which prepare a field for cowardice and bad faith, turning free citizens into human dust.

"The time of the isolated countries is past. The world has long since become one family, which is frequently torn asunder by internal struggles, but which is nevertheless bound together by strong ties—economical, cultural, and others.

"Should we, as contemptible slaves, fail to organize into a strong nation, then a dark, sanguine period of internal strife will surely come, and our ideals will be cast under the heels of that despotic rule which holds that might is right and not that right is might. Every one of us, from the soldier to the minister, and from the minister to the soldier, can do whatever he pleases, but he must do it with eyes wide open, placing his devotion to the common ideal above all else.

"Comrades, for years we have suffered in silence and were forced to fulfill duties imposed upon us by the old hateful might. You were able to fire on the people when the government demanded that of you. And how do we stand now? Now we can no longer endure! What does it mean? Does it mean that free Russia is a nation of rebellious slaves?" (*Uneasiness all over the hall.*)

"Comrades, I can't—I don't know how I can tell the people untruths and conceal from them the truth!

"I came to you because my strength was giving way, because I am not longer aware of my previous courage. I haven't the previous confidence that we are not facing rebellious slaves, but conscious citizens engaged in the creation of a new Russia and going about their work with an enthusiasm worthy of the Russian people.

"They tell us that the front is no longer a necessity; fraternizing is going on there. Do they fraternize on the French front? No, comrades. If fraternize, then let us fraternize on both sides. Have not the forces of our adversary been transported to the Anglo-French front? And has not the Anglo-French offensive been halted already? As far as we are concerned, there is no such thing as a Russian front;

Photograph from Stanley Washburn

AN UNUSUAL SIGHT: AN AMERICAN NEWSPAPER CORRESPONDENT ADDRESSING RUSSIAN TROOPS AT THE INVITATION OF THEIR COMMANDER

there is one front, and that is an Allied front.

"We are marching toward peace, and I should not be a member of the Provisional Government were it to disregard the will of the people as far as ending the war goes; but there are roads wide open and there are narrow, dark alleys, a stroll through which might cause one to lose both his life and honor.

"We want to hasten the end of this fratricidal war; but to this end we must march across the open, straight road.

"We are not an assembly of tired people; we are a nation. There are paths. They are long and complex. We are in need of an enormous amount of perseverance and calm. If we propose new war aims, then it behooves us to conduct ourselves so as to command the respect of both friend and foe. No one respects a weakling.

"I regret that I did not die two months ago. I would have died then happy with the dream that a new life has lit up in Russia; hopeful of a time when we could respect each other without resorting to the knout; hopeful that we could rule our Empire not as it was ruled by our previous despots.

"This is all, comrades, that I care to say. It is, of course, possible that I am mistaken. The diagnosis that I have made may turn out to be incorrect, but I think I am not so much in error as would appear to others. My diagnosis is: If we do not immediately realize the tragedy and hopelessness of the situation; if we do not concede that the immediate responsibility rests on all; if our political organism will not work as smoothly as a well-oiled mechanism, then all that we dreamed of, all to which we are striving, will be cast several years back and possibly drowned in blood. I want to believe that we will find the solution for our problems, and that we will march forward along the open and bright road of democracy.

"The moment has come when every one must search the depths of his conscience in order to realize whither he himself is going and whither he is leading those who, through the fault of the

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Photograph from Boston Photo News Company

SOY-BEANS ON THE DOCKS AT DALNY, DESTINED FOR RUSSIAN ARMIES ON THE EUROPEAN BATTLE FRONT

The soy-bean takes the place of meat in the diet of the Japanese, and its nutritive properties are gradually being recognized by the peoples of occidental nations. It has been grown for centuries in China and Japan, and has recently been introduced into America and Europe as an important food and forage plant.

Photograph from H. S. Cresswell

A RUSSIAN "ISBA" IN A VILLAGE NEAR MOSCOW

Far from a railway, these "isbas," or huts, are thatched, while the modern "isbas," near a railway, are tin-roofed and usually flat-roofed, as a protection against sparks from the engines.

old government, which held the people in darkness, regard every printed word as law. It is not difficult to play with this element, but the game is apt to be brought too far.

"I came here because I believed in my right to tell the truth as I understand it. People who even under the old régime went about their work openly and without fear of death, those people, I say, will not be terrorized. The fate of our country is in our hands and the country is in great danger. We have sipped of the cup of liberty and we are somewhat intoxicated. But we are not in need of intoxication; we are in need of the greatest possible sobriety and discipline. We must enter history so that they may write on our graves: 'They died, but they were never slaves.'"

FIRST ORDERS BY THE NEW MINISTER OF WAR

As a member of the Coalition Cabinet, Kerensky took the post of Minister of War and the Navy. One of the main problems facing the new government was the consolidation of the war strength of the Russian army.

It was desirable that the big task of reorganizing the Russian troops be assumed by Kerensky, who was most popular with the Russian soldiers.

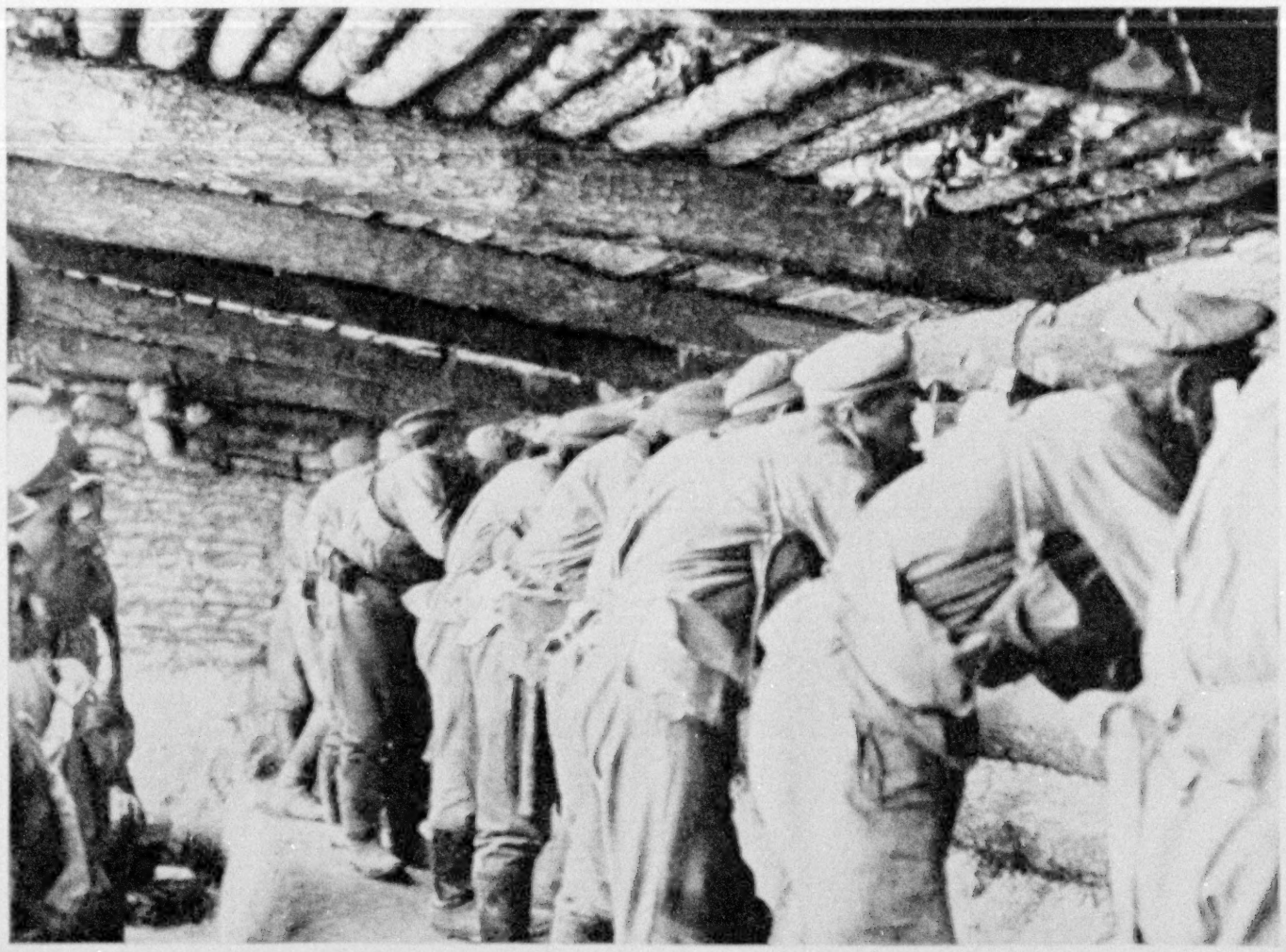
His first order to the Russian army and navy was as follows:

"Having assumed the military powers of the country, I declare:

"First. The country is in danger, and a duty devolves upon every one to extricate her from it, regardless of difficulties. I will therefore refuse to accept resignations prompted by a desire to avoid responsibilities in this grave hour.

"Second. Those who have voluntarily left their military and fleet units (deserters) must return at the appointed time (the 28th of May).

"Third. Those guilty of violation of this order will be punished under the full severity of the law.



Photograph by Stanley Washburn

RUSSIANS IN CAREFULLY CONSTRUCTED TRENCHES ON THE GALICIAN FRONT

A few hours after this picture was taken the enemy launched a successful drive against this position and only six of the defenders escaped uninjured, while the trench itself was reduced to debris in the course of a two-hour bombardment preparatory to the enemy's advance.

"To read this order to all companies, squads, batteries, and crews on the battleships.

"A. KERENSKY,
"Minister of War and Navy."

ORDER OF MAY 25

"Warriors, officers, soldiers and sailors! In this great and sad hour in the life of our country, I am commanded by the will of the people to take my place at the head of the Russian armed forces. Infinitely heavy is my new burden; but as an old soldier of the revolution, submitting to the severe discipline of duty, I have assumed before the people and the revolution the responsibility of the army and fleet.

"All of you warriors of free Russia, from soldier to general, are fulfilling a glorious debt, the debt of defending revolutionary Russia. By defending Russia you are at the same time battling for the triumph of the great ideals of revolution—for liberty, equality, and fraternity.

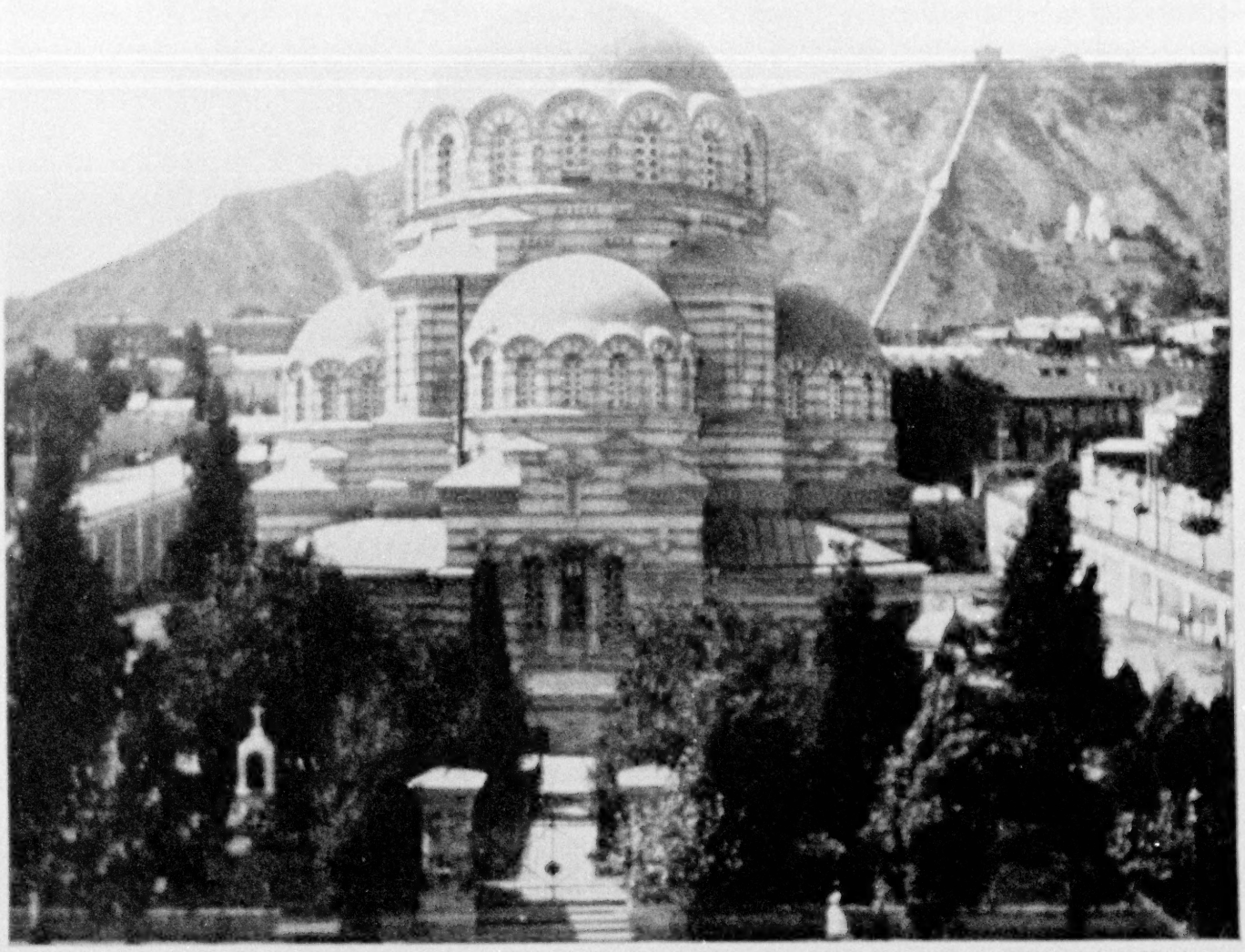
"Not a drop of our blood will be spilled in the name of untruth.

"You will march forward where your leaders and the government will direct you, not for the purpose of conquest and violence, but in order to save free Russia.

"It is impossible to drive away the enemy while standing in one place.

"On the tips of your bayonets you will bear peace, right, justice, and fair play. In straight ranks, strengthened by discipline of duty and undying love to the revolution and country, we will go forward, free sons of Russia.

"Without discipline there is no unity of action; without discipline there can be no salvation. The fate of our liberty depends on whether the army and fleet will fulfill their duty to their country up to the very last. By vanquishing Tsarism the army has performed a great deal, having shown how one must love and



Photograph by Elisabeth Randolph Shirley

A CHURCH AT TIFLIS, CAUCASUS

battle for liberty. But I believe that the army will perform still greater deeds; they will show how to understand liberty, cherish her, and die for her.

"Let the freest army and fleet in the world prove that in liberty there is strength and not weakness; let them forge a new and iron discipline of duty, and let them raise the battle strength of the land; let them add to the will of the people that grandeur of might which will hasten the hour of the realization of the people's hopes.

"Forward to liberty, land, and freedom!

"He who will look about, pause, and go back will lose all.

"Do not forget, you warriors of the revolution, should you fail in your efforts to defend the honor and greatness of your country, your names will be condemned.

"Difficult is the task before you, but you will fulfill it conscious of the pride that you are carrying out the will of the revolution. Your names, your pains, will be sanctified by free Russia. Your children will remember with pride and reverence the army of the revolution. By the will of the people you must clear your country of devastators and ravagers. I call upon you to perform this deed. Is it possible that you, too, will not heed me? Comrades, with you lies the mind and the heart of revolutionary Russia. Let the thought of this inspire your hearts with new decision.

"Brothers, I greet you in the name of the Russian revolution; I bow before you in the name of the great Russian people!

"To read the order to all companies, squads, batteries, and to all the crews on all men-of-war.

"A. KERENSKY,
"Minister of War and Navy."

Photograph from Stanley Washburn

RUSSIAN MOUNTED GUARD DIRECTING THE ENTRANCE OF A CARTLOAD OF BREAD INTO A TOWN ON THE GALICIAN FRONT

In the early part of June, Kerensky undertook a tour along the entire front. He did it in order to speed the work of reorganizing the army and put it into shape for the coming offensive. Everywhere the Minister discussed the war with the soldiers, endeavoring to prove to them the necessity of continuing the struggle with the German militarism and in order to safeguard Russian freedom and the conquest of the revolution. During one of these discussions the following scene took place:

"FREEDOM IS NOT SELF-WILL"

A soldier asked the Minister whether it will not be necessary to attack the Germans in order to consolidate the conquests of freedom. The Minister in reply said that an attack would be a matter to be dealt with by the higher commandant.

Whereupon the soldier said, "If we advance, we shall all perish, and dead people need neither freedom nor land. That is why the government must hasten to make peace."

The soldier was about to go on with his argument when he was sharply interrupted by the Minister.

"Freedom does not mean the self-will of each and every one," said Kerensky severely, "and the power instituted by the revolution is a real power. Russian sons have during decades past perished on the gallows; they have not given their lives in order to have the first coward that comes along place egotistical interest above the interests of the country and people.

"A real revolutionary never thinks of personal advantage or safety.

"His great happiness is to die for the common good.

"He who is afraid of his shadow is not worthy of freedom.

"Mr. Colonel," added Kerensky, addressing the commandant of the regiment, "make it known in tomorrow's order that this soldier is freed from the army. He is at liberty to go home, but every one will know that he is a coward, who refused to defend the Russian land."

"Permit me, Minister," replied the Col-

Photograph by George H. Mewes

RUSSIAN ARTILLERY ON THE ROAD "SOMEWHERE IN THE NEWEST REPUBLIC"

Illimitable spaces to cover, but millions of men to accomplish it, is Russia's part in this war. The front these millions must maintain in the cause of liberty extends from the Baltic to the Black Sea, a line of over 1,500 miles.

Photograph by Elisabeth Randolph Shirley

GEORGIAN WOMAN IN COSTUME: TIFLIS, CAUCASUS

onel, "to have five or six other men of our regiment accompany this soldier to the rear; we have not many of them, but they disgrace the regiment."

"No," said the Minister, "in the meantime one is enough."

"And you comrades," continued Kerensky, addressing the other soldiers, "can it be possible that you share the opinion of this soldier?"

"No," thundered the soldiers in reply, "we do not agree with him. We will uphold you. We will all die if need be."

"I do not doubt it, comrades," said Kerensky.

KERENSKY'S ORDER TO ATTACK

Kerensky's efforts were not in vain. Inspired by his exhortations, having full confidence in leaders like Brussiloff and Korniloff, reorganized along new and democratic lines, the Russian army assumed the offensive against the enemy in Galicia.

On the eve of the attack Kerensky gave the following order:

"Russia, liberated from the chains of slavery, is firmly resolved to protect, at all cost, the rights of honor and liberty. Having had faith in the fraternal feelings of nations, the Russian democracy has called the warring countries with an ardent appeal to cease the carnage and to conclude an honorable peace, securing tranquillity for all nations; but, in response to this fraternal appeal, the enemy has proposed to us treason.

"The Austro-Germans have offered to Russia a separate peace and tried to blind our vigilance by fraternization, hurling themselves at the same time against our allies with the hope of crushing us after their defeat. Being now convinced that Russia will not allow herself to be tricked, the enemy is threatening us and concentrating troops on our front.

"Warriors, our motherland is in danger. Freedom and revolution are in peril. The time has come when our army must accomplish its duty. Your commanding general, beloved through victory, proclaims that each day lost adds new strength to our enemy, and that only an immediate decisive blow can disrupt the plans of the foe.

"Therefore, being fully conscious of the great responsibility of the country, in the name of the free Russian people and its Provisional Government, I call upon the armies, strengthened with vigor by

Photograph by Vittorio Sella

LONGUTA GLACIER AND MOUNTAINS TO THE SOUTHWEST: CENTRAL CAUCASUS, RUSSIA

One of the more than nine hundred glaciers in the central section of the Caucasus Mountains, covering a total area of nearly 700 square miles

Photograph by Vittorio Sella

THE ICE-FALL OF KARAGOUR GLACIER, CENTRAL CAUCASUS, RUSSIA: THE GLACIER IS 9½ MILES LONG AND COVERS AN AREA OF 14 SQUARE MILES

Photograph by George H. Mewes

A ROLL-CALL FOR HEROES

These few men, answering to the roll-call by their commanding officer after a battle, were all that remained of a company of more than two hundred. The others had answered the final roll-call in the cause of liberty.

Photograph by Gilbert H. Grosvenor

SHRINE IN A BAZAAR IN PETROGRAD

The average Russian carries his religion with him into the field, into the trenches, and into the marts of trade. His places of worship are not merely the great cathedrals which have been reared with lavish hands by the old regime. At the outbreak of the revolution it was feared by many that, as the head of the Orthodox Church, the hold of the Tsar upon the masses would counteract the people's passion for liberty, but conscience and politics have been successfully separated.

the revolutionary genius, to start the offensive. The enemy must wait before celebrating victory.

"All nations must know that it was not through weakness that we talked peace. Let them know that liberty augments our forces. Officers and soldiers, you must realize that all Russia is blessing your acts on the field of honor. In the name of liberty, future prosperity, and in the name of a lasting and honorable peace, I command you, 'Forward!'

"A. KERENSKY,
"Minister of War and Navy."

Photograph by courtesy of the Italian Military Mission

FIRST LINE OF ITALIAN TRENCHES IN THE CADORE DISTRICT, AS SEEN FROM ABOVE

The dark line across the snow is not the trench itself, but the barbed-wire entanglements stretched in front. In summer the wire, which is fastened to posts cemented into the rock, serves its purpose; but in winter, when the deep snow covers it, the enemy could readily advance over the top. To prevent this, little wooden saw-horses are constructed in the trenches, the wire attached, and the portable entanglements pushed out on the hard snow surface.

LETTERS FROM THE ITALIAN FRONT

By Marchesa Louise de Rosales to Ethel Mather Bagg

DEAR L——:

Did I tell you some time ago of two Sicilian peasants who had never done anything but work the earth before the war? Each has lost his right arm, and has since learned to wood-carve so well that both have been employed by a great firm which manufactures fine furniture and frames, and they earn seven or eight francs a day. These two men wanted to take me to the front, because they feel I have so many precious things to distribute, and they are enchanted with the comfort bags.

How can I thank you for your generous gift of the anesthetic *novo caiene?* It is thoroughly practical in those tiny boxes, each one of which contains sufficient for so many operations. I am taking it up to the front personally, and I have put aside some rubber gloves to take up also.

Your rubber sheeting goes off this week, all cut up into 90-centimeter lengths, with four rings in the corners, of metal. Thirty of the sheets went up to the Trentino hospitals, in which the Contessa is interested—a front where there has been so much fighting lately. Some I sent to Contessa L., a splendid woman, one of the most active in Italy, for her hospitals in Bologna and near Gorizia. Others were sent to a new hospital, where C. has friends among the nurses and doctors and where there are 1,000 beds of half-ill and half-wounded men.

You cannot, I think, realize what a luxury all rubber goods are here in Italy and the joy they give. Mrs. M. is sending me cases that are doubly precious, for there are things on the list like catgut or crinoline that simply can't be had for love or money.

I am now erecting two barracks for a restaurant, where the officers can eat at a fixed price and cheaper. The barracks and the tables are going to be constructed with my savings, and the walls are being decorated with the colored pictures of the Domenica del Corriere. I am also instituting a bath for the soldiers. All the plans are ready. You will see how nicely it is coming out.

I hoped in your last letter to receive the announcement that you had sent me some gauze as protection against the flies. It is very hot here, and the hospitals are full of wounded. There are no ventilators, and these poor boys suffer from the heat, and especially from the flies. You will understand they cannot always manipulate their hands, either because they are wounded or because of being tied in abdominal bandages; therefore they have no way of "shooing" away these trying pests. The netting would protect the soldiers, and so they could be comfortable even in the daytime.

In these days of feverish and exacting work you will read that we are going forward.

Recently I organized a ceremony in the graveyard—discourses and a funeral mass. The school children strewed marguerites on the tombs of the fallen heroes.

In my recreation hut I have from 300 to 400 soldiers every evening. They are happy. I give them a cinematograph show; then they play *tombola, oca,* dominoes, etc. I am arranging the marionette theater and hope to have it ready soon.

I cannot tell you how keen was my enthusiasm when I received your cases and your dear letters. I had everything immediately put in the little rustic room ahead of mine, and we will distribute the material where the greatest need is. Everything is precious here. We are full of work, and your tamarinds with this heat and your iron frames to keep the bed covers from touching the wounded men are very practical. Work is certainly not lacking, and I assure you that I have passed through a month which forever will be impressed on my life.

We are much exposed to shells, and sometimes they wound the men at the

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Photograph by courtesy of the Italian Military Mission

SEA OF CLOUDS FROM MONTE CRISTALLO: THE CADORE DISTRICT, DOLOMITE ALPS

This view, taken from above the clouds on Monte Cristallo, which is over 10,000 feet high, shows the peaks of two other famous mountains known to Alpinists all over the world—Monte Pelmo and Monte Civetta, both over 10,000 feet.

very door. Lately two hand grenades fell 30 meters away from the hospital; but we are all calm and think that God will protect us in this mission of love. Our splendid soldiers give us such a great example of courage and sacrifice, patience and faith, that one near them feels unworthy.

Our hospital is the most advanced in this zone, and therefore we receive the most gravely wounded. Naturally we cannot do everything that we want to; but I think it would be worse if we were not here, and with the moral part, coupled with the help at the bedside, we can comfort so many stricken bodies, so many poor lacerated hearts.

I have not written so frequently of late because I am dead tired when I at last get to my room. I fall asleep quickly, but we are often awakened at night by gas attacks and must go down to safety with our gas masks on. So one sleeps when one can. My soul has been obliged to go through a process of adaptation to the surroundings, to the visions, to the continual surprises; but little by little one acquires the courage to face it all.

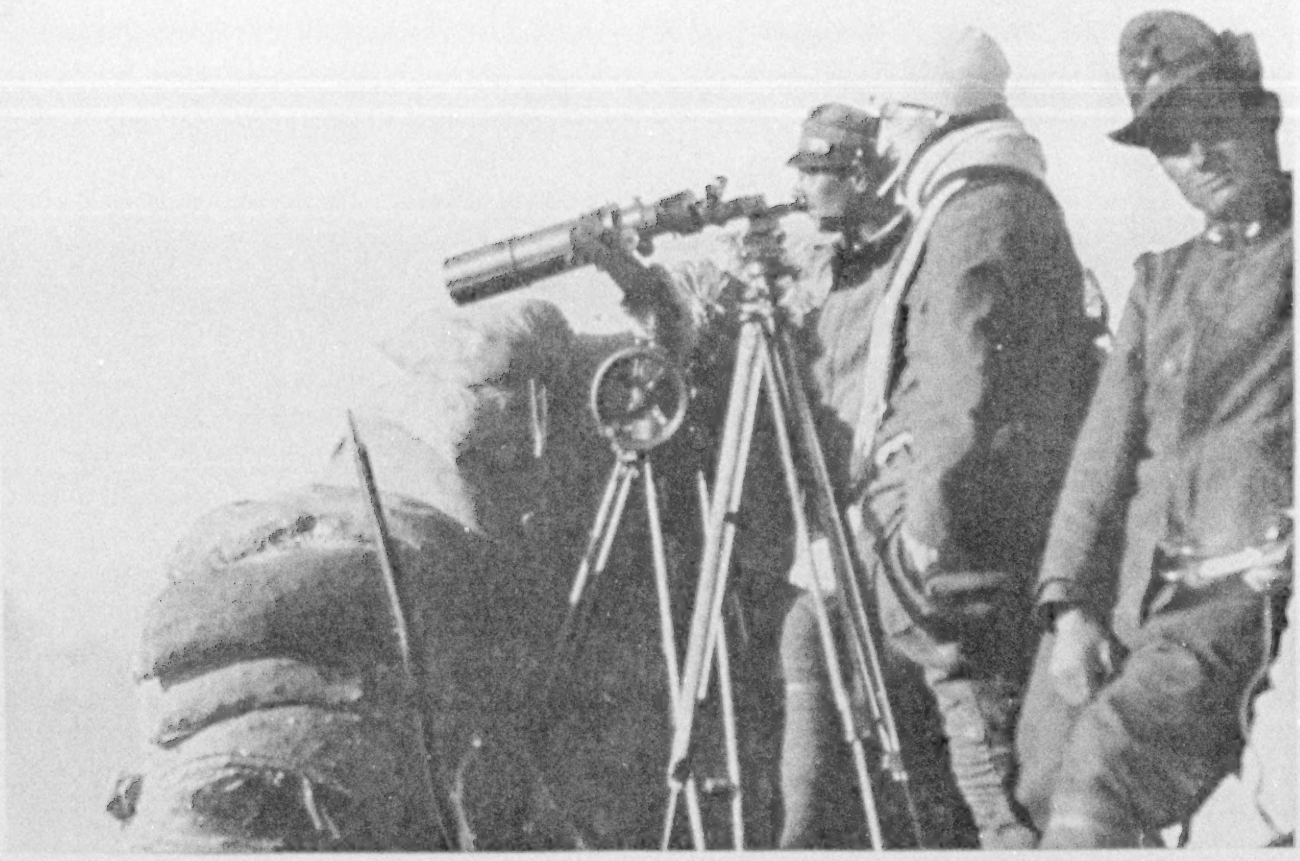
RECEIVES ONLY THE GRAVEST CASES

Since arriving here I have never had time to write any letters except to B. and to Mother, because the work and suffering we face are so overwhelming and demand every waking moment.

I cannot even begin to tell you what I suffer every day, for my poor wounded are all the gravest cases. It seems this is the most advanced hospital where there are women nurses working, so you can imagine the amount we found to be done and which, little by little, we are accomplishing, according to the means we have at our disposal. And then every day we have visits from enemy shells, which prove indeed that we are in the War Zone.

But who thinks of danger when working for stricken brothers?

I write in the hall of the hospital; it is the first day I have had a moment's respite, for here it is a continual coming and going of wounded men, who arrive either to die after a very short time, or after a few days to be transported to hospitals farther from the front. One needs a



Photograph from Prof. Giorgio Abetti

ARTILLERY OBSERVERS ON MONTE CRISTALLO

These men are at a height of about 10,000 feet and are observing activities in a similar Austrian position only 600 yards away in a straight line, but on the other side of a deep declivity, which forms the bed of a glacier, making a difficult path even for the Alpini.

great moral courage, which I am able to give, little by little, with prayer and faith in all that is good.

"THE ENEMY IS BEING DRIVEN BACK"

It is quite impossible for me to write to you coherently tonight. A long letter I may not send, and if I began to describe I should write for hours. We have been here now for 48 hours. The Isonzo is three-quarters of an hour's walk across the meadows, and on the hills, just about 10 miles away, the battle has been raging since our arrival. The big guns roar and thunder day and night: but we are already so accustomed to the noise that we often forget the sound and talk quite lightly of different things. They are pounding as I write, as though they would break off bits of the mountain and crumble parts of it to pieces.

Under my window hundreds of camions pass day and night—one long procession—carrying up fresh troops and ammunition, carrying down the wounded or those who have stood the strain of the fighting so long that they are being brought away to rest a little. At night the sky is fully illuminated by the flashes of explosives.

I was in the cemetery this afternoon. They have knocked down part of the wall to enlarge it, and the soldiers were busy digging new graves, so as to have them ready. There was military music in one of the camps near by and it was really comforting to hear it.

Strange, we have a feeling of perfect security and the sensation of believing that the enemy is being beaten back and back and will never cross the Isonzo again.

This little town was Austrian a short time ago. Except for a very few simple peasant folk and a few others in little shops, I am the only woman in the town, with its thousands of soldiers, and every half hour of the day I gain some new, unexpected impression impossible to describe by letter—very difficult even by speech.

I write by the light of one dim candle and leave you now to go to dinner with M. and R. and three officers.

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Photograph from Comando Supremo, Italian Army

ITALIAN SOLDIERS PROVIDED WITH SKIS MARCHING FORWARD AND UP

The difficulty of proceeding over the snow-covered mountain trails is shown by the step of the men in the rear. This photograph was taken in April, when the snow had been softened by the warmer rays of the sun and the path made almost impassable by the slush.

BEHIND THE LINES DURING AN ATTACK

My life here seems a dream, and will always seem a dream when I look back upon it. I have been motoring today over the country recently devastated by shells, visiting some recreation huts established here by an English woman. Poor, miserable places they are; but all there is just at present in this district, and consequently much appreciated.

The cold north wind, so dreaded in this part of the world, has been blowing cruelly across this desert country all day. The artillery is firing thunderously and the Austrian searchlights lit up the sky last night. In this little town there has been comparative quiet for the last few days, but a strange, busy movement is beginning again today. Camions and mules pass and pass, and I am told we are to attack again. We arrived in the midst of one attack and it was indeed a wonderful experience. The traffic on the streets, the sound of the big guns, the prisoners being brought in, and then, after it was all over, the troops returning to rest back of the line, told eloquently of the happenings in the trenches.

M. and I and four officers spent a

Photograph from Comando Supremo, Italian Army

VIA THE TELIFERICA FROM ONE MOUNTAIN PEAK TO ANOTHER

Steel cables strung from height to height are used to transport men, guns, and provisions on the Italian front in the Dolomites. Owing to the difficulty of constructing roads and keeping them free from avalanches, this constitutes the only means of communication in the high mountain regions during the long winter season and often also during the summer months. Expert Italian engineers called to the colors from their work in the South African mining districts brought the idea of the teliferica with them into the Alps.

strange evening yesterday in the house of a priest here, whose parish was Austrian a few months ago, before the Italian occupation. Upon learning that he was an excellent musician, we persuaded him to play for us selections from Grieg, Wagner, and even La Boheme. Almost always when there was a pause in the music we heard the cannon, but paid no attention unless they sounded very near, so near that the windows rattled, in which case every one listened a moment and looked strangely at each other, but seldom said anything.

A VISIT TO THE HOSPITAL WHERE MUTILATED FACES ARE REMADE

I received your letter when in the midst of tragedy and horrors beyond all description. We are now having a most interesting time in this picturesque town of Bologna. We thought to end our trip

Photograph from Comando Supremo, Italian Army

ITALIAN SOLDIERS CARRYING BUILDING MATERIAL UP THE HEIGHTS

Far above the timber-line barracks must be constructed for the comfort of the troops and the lumber must be carried up the last stretches by the men themselves

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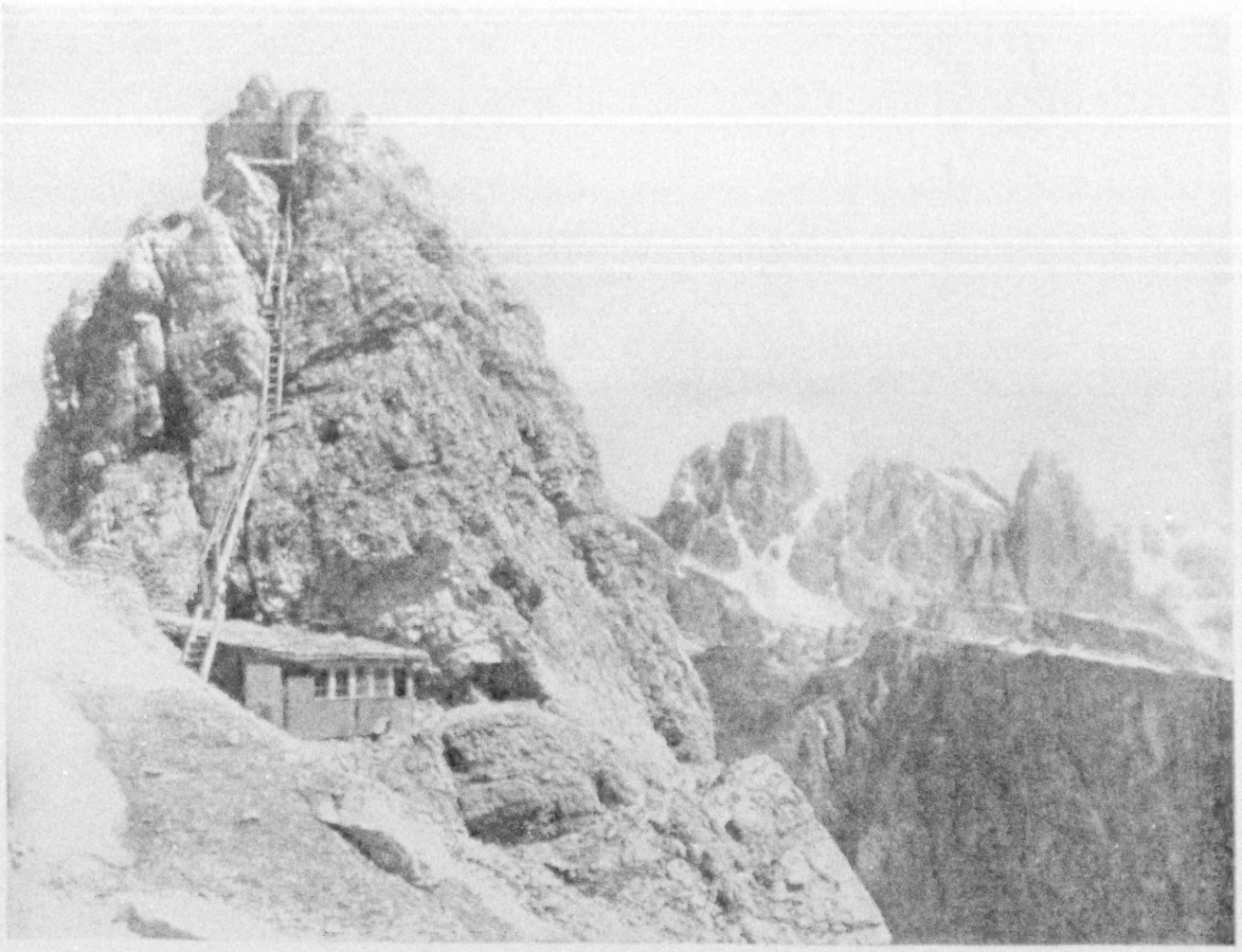
Photograph from Comando Supremo, Italian Army

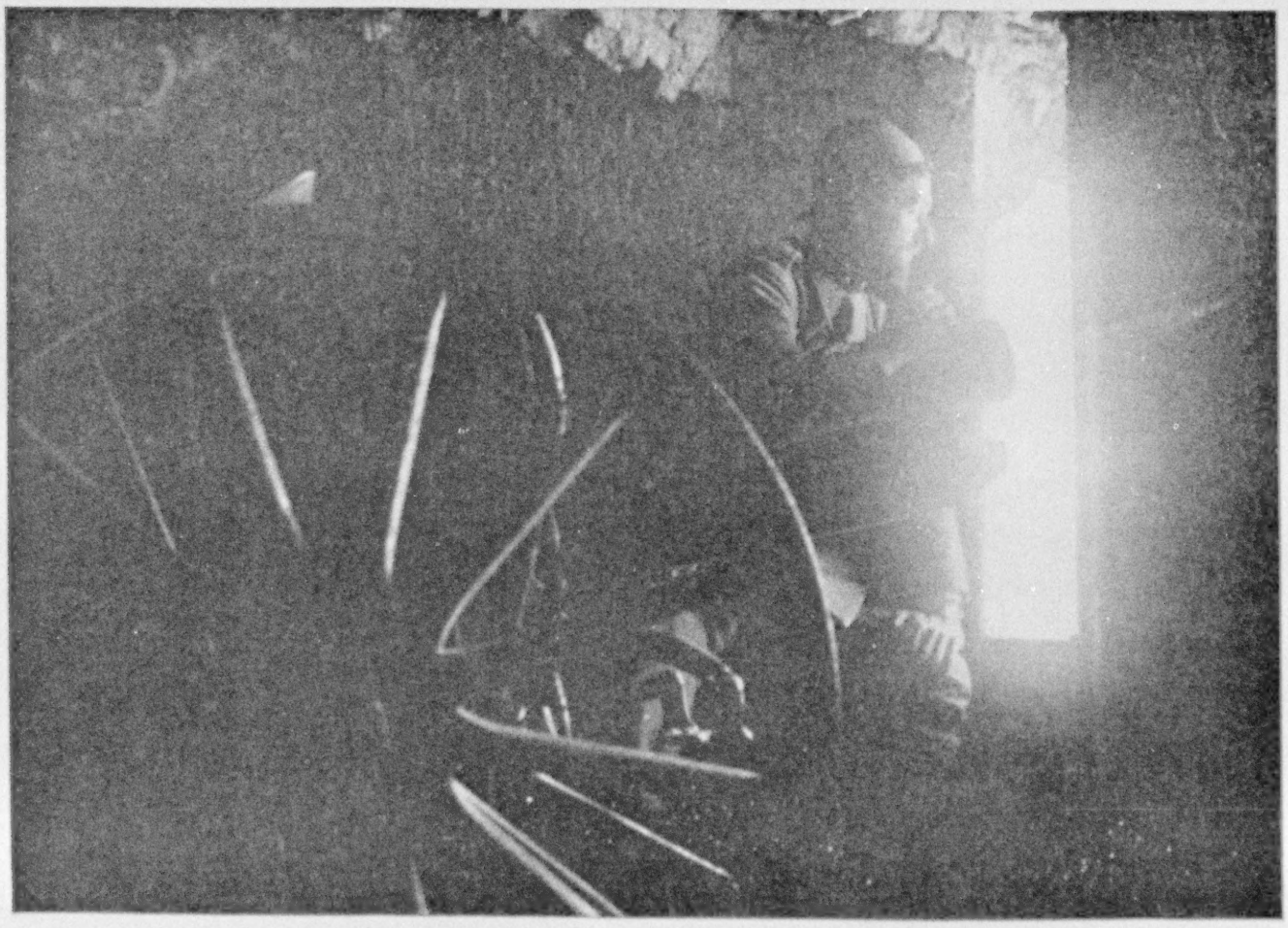
RELIGIOUS SERVICES BEFORE AN ALTAR OF SNOW ON THE EVE OF AN OFFENSIVE

This altar is in the high mountains of the Cadore district and was carved from snow by a peasant boy from a village on the Lake of Como. The priest is celebrating mass in his snowy cathedral for the troops who are soon to go forward in attack.



AN ITALIAN ARTILLERY OBSERVATORY IN THE DOLOMITES

A stairway is built almost to the top of the peak and a tunnel drilled through the vertex. Climbing up in safety on their own side, the observers make their way through the tunnel to a point where they can overlook the positions of the enemy.



Photographs by courtesy of the Italian Military Mission

A FIELD ARTILLERYMAN AND HIS PET IN THE DOLOMITES

Artillery positions high up in the mountains are frequently embrasures blasted out of the solid rock, with the front filled in and only a small opening left for the mouth of the gun.

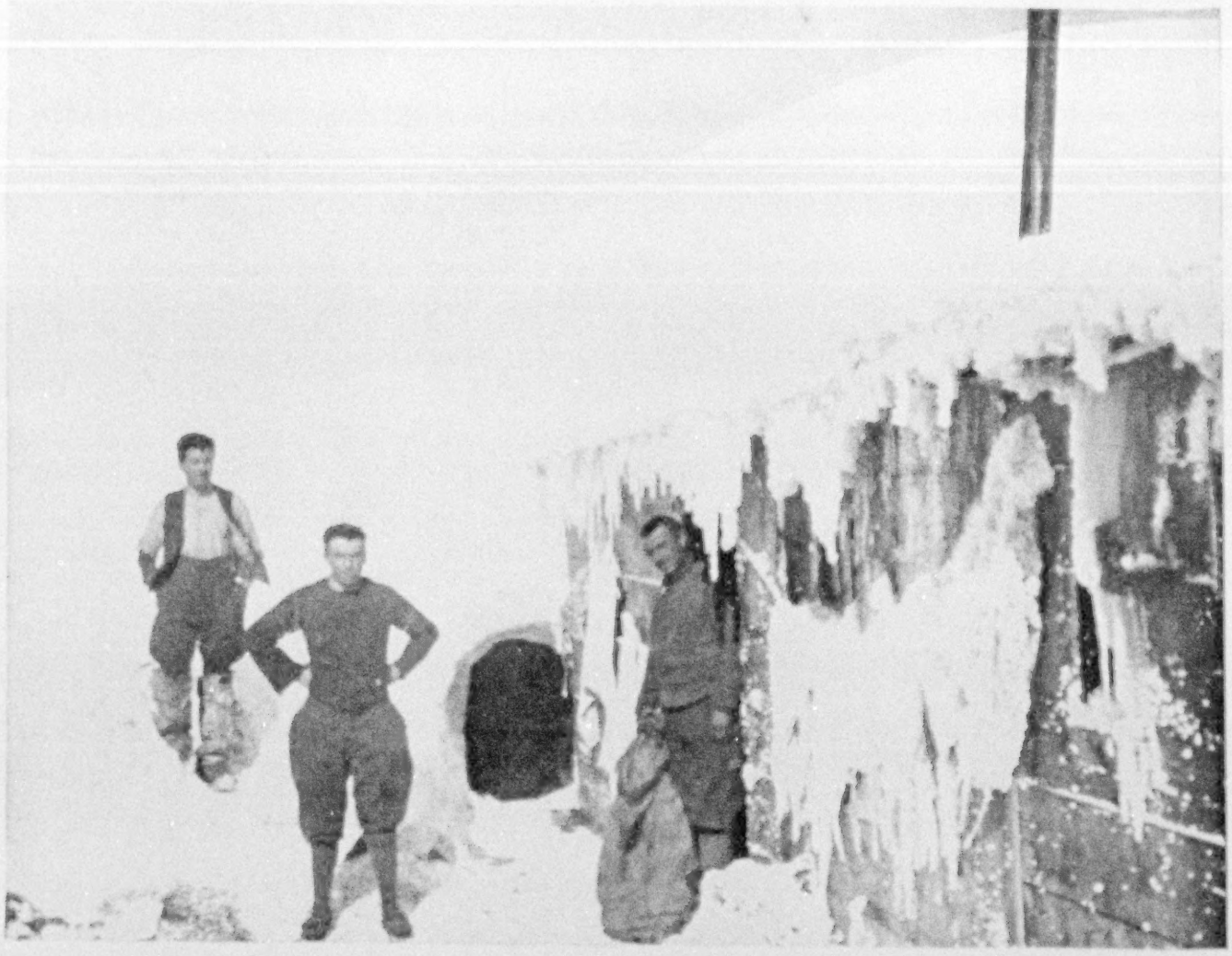
TRANSPORTING THE WOUNDED BY THE TELIFERICA

The teliferica car provides the most comfortable vehicle for the men wounded at the front, and this is the easiest stage of their long journey back to the base hospitals

Photographs from Comando Supremo, Italian Army

FUNERAL OF AN ITALIAN SOLDIER IN THE ALPS

To their snowy graves are carried the bodies of Italy's Alpine heroes who have given their lives for their country. If time and opportunity permit, they are sent back whence they came, but more often they are buried with full military honors in the ice and snow of the glaciers.



Photograph by courtesy of the Italian Military Mission

COMMANDER'S QUARTERS ON CIMO PALOMBINO: DOLOMITE ALPS

This picture of a commanding officer's headquarters hut was taken on a morning following a blizzard in the mountains. At the right, what looks to be simply icicles and snow is really the weekly wash hung out to dry, but caught in the storm and covered with frozen sleet. The opening between the two men in the foreground is the entrance to the tunnel which leads to the artillery observation post on the opposite side of the peak toward the enemy.

in two days, but shall be here for four, seeing hospitals, orphanages, and establishments for the mutilated. We are just off to a soldiers' club, at whose head is a remarkable priest.

A splendid woman, who does wonderful work here, thinking I wanted to see everything, brought me yesterday to the hospital where they make over poor wounded and demolished faces, and all the doctor's pet faces, in the process of healing, were shown me. I was extremely interested; but the sight of one or two was quite sufficient to demonstrate what wonders had been achieved, and I did not want to see more. But there was no way out of it; I had to stay. In a way it was good for me to learn at first hand what real suffering means.

After seeing the faces in process of restoration, I was taken into the medication room, where men were having their healing limbs treated in agonizing machines to prevent them from becoming permanently stiff. They were wailing and moaning from pain; two of them yelling. Coming out from under the influence of chloroform after his operation, one kept begging and begging, "Oh, let me die. Oh, let me die; I can stand no more." One had a broken spine—a young officer.

PHONOGRAPHS CHIEF DELIGHT OF SOLDIERS

A soldier, with my cases of hospital supplies, instruments, etc., left Rome day before yesterday for a tiny village near Gorizia. Another sack went off yesterday to the high Alps in the Cadore, carried, I think, by the four Garibaldi brothers. M. and I are busy at present trying to bring aid to the Italian prisoners in Austria and helping to start recreation

huts all along the Italian front. A few already exist, but hundreds are needed. The Austrians have them all along their lines, six kilometers behind the fighting zone, I am told, which is a proof that they are not a luxury, but an absolute necessity. They exist, as you know, in great numbers along the French and English fronts in France.

The secretary of the Y. M. C. A. in France is here—a delightful young enthusiast—and we are doing all we can to get permission for him to work here. Mr. Davis told me the other day that in one of his huts in France one Sunday morning 10,000 letters were posted. So you can imagine how the paper bills mount up.

Oh, if you could have seen 14,000 soldiers, as I did in the little village where I was stopping at the front, coming down from the terrific fortnight's fighting in the trenches! They were quartered in the village and in tents in the surrounding muddy fields—deep, sticky mud characteristic of the Corso. There was much rain, thunder-storms, and a cruel north wind blowing; yet all the diversion they found awaiting them was the osteria (bar). What they absolutely revel in is phonographs, but these are too expensive to ask for.

The inhabitants of this village were all Austrians until a short time ago, for we were on conquered territory and always spoke of going back to Italy. Sign-posts by the road still exist with Austrian designations upon them.

We arrived in the midst of a great attack, taking place about six kilometers away. The Austrians fired on our little village before our arrival and just after we left, but not during our stay. The cannon roared and thundered day and night, and the sky at night was ablaze with flashes of explosions, enemy searchlights, green signal rockets, etc.

After about three days the fighting ceased and the men came down from the hills to rest. Then it was that my heart ached that there were no recreation huts, warm and bright and cheerful, for them to go to. A few days before we left an even greater attack began. It started at night, during a thunder-storm, and it was quite impossible to say which were resounding peals of thunder and which the firing of the 305's. By the time we reached Rome the papers were full of reports of the amazing advance the Italians had made.

BEAUTIFUL EXPRESSION ON FACES OF THOSE WHO HAVE BRAVED DEATH

Such an extraordinary sensation, being surrounded by thousands of men who for months have faced death day and night! It gives a peculiar and very beautiful expression to many of the faces. The church was crowded, all seats taken and aisles packed, when they came down from the trenches and before they returned. I have never been so moved and impressed and could not bear it more than once.

Many who had just arrived had not had time for a bath and change, so the uniforms were tattered and stained and the fortnight's (they generally remain about a fortnight at a time in the trenches) beard was still upon the young faces. They knelt for half an hour at a time, immovable as images, in front of the different altars, praying to their favorite saints and madonnas in thanksgiving or supplicating for protection. The church was lit only by the candles they had bought, very short or very long, according to the number of "soldi" they could afford to pay; and then, with the organ, they sang a beautiful song composed since the war, "Oh, Santa Madonna prega per noi."

One cloudless, sunny afternoon I shall never forget. In the little cemetery, just outside the village, the sound of the artillery was continuous, but rather far away. Over our heads Italian aëroplanes were flying, and suddenly from the blue came a strange rattle, an Austrian *mitraliatrice*, that was trying to bring them down. Several soldiers were working silently at some tombs of their comrades: one with a portrait bas-relief made by the simple soldier friend. In a corner of the cemetery other soldiers were busy digging new graves to have them ready for the men who were fighting a few kilometers away and would not return alive. Mingled with the sound of the spades was a little song of the soldier outside of

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Photograph from Comando Supremo, Italian Army

ITALIAN ALPINE TROOPS CLAD IN WHITE

To reduce their visibility the Italians don white suits over their uniforms when they advance over the glaciers. By this protective coloration a comparatively small party can creep forward over the snow-fields undetected by observers and take strong enemy positions by surprise attacks.

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Photograph from Comando Supremo, Italian Army

ADVANCING ACROSS THE GLACIER FOR AN ATTACK ON THE ADAMELLO

This is one of the highest mountains on the Italian front, having an elevation between 12,000 and 13,000 feet. Nature has outdone the ingenuity of man in making it an almost impregnable fortress, yet no obstacle seems too great for the hardy Italian infantrymen to overcome. Before the war Italy's only mountain troops consisted of a comparatively small but famous corps called the Alpini, composed of trained mountaineers; today the nation has a great army of experts, trained and efficient in mountain warfare.

DEVOTED ALLIES OF MANKIND

These dogs carry food and messages between the solitary sentinels and their base camps in the Alps. Often the path is destroyed by avalanches, but the intelligent animals find the best way down by instinct and seldom fail in their mission.

Photographs from Comando Supremo, Italian Army

A RED CROSS UNIT ON THE ITALIAN FRONT

The Italians are very appreciative of the work done by the Red Cross and several of its members have been decorated by the Italian Government for acts of especial bravery

Photograph from Comando Supremo, Italian Army

THE SKIRMISH LINE OF ITALIAN SKIMEN ADVANCING IN ATTACK

These troops, mounted on skis, can descend upon an enemy position like a flock of great white birds, bringing a message of disaster to their foe. In this picture they are creeping forward in skirmish formation, firing as they go.

the cemetery gate, singing as he looked for the mules.

And the never-ending procession I saw every time I looked out of my bedroom window! Day and night the camions went up on one side of the little street taking munitions, bread, etc., while thousands of mules and men tramped by, the mules bearing water and food for the soldiers, and brightly painted Sicilian carts carrying fodder for the mules. On the opposite side of the street came down another procession, made up of empty camions to be loaded again and Red Cross ambulances bringing in the wounded. Through our tiny village 120,000 loaves of bread passed each day.

SOLDIERS BATTLE AMID ARCTIC COLD IN THE HIGH ALPS

I was talking to a young nurse, 21 years old, who came down from a hospital in the high Alps by toboggan last week. At noon, when hanging out her sheets to dry in the sun, they often freeze stiff. The sentinels must sometimes be changed every ten minutes, so as not to die with the cold. Some of the men are fighting on peaks, where supplies can reach them only by the teliferica (you know, the baskets slung to a wire that pulls them up thousands of feet), or by cords and ladders up perpendicular walls of rocks.

This afternoon I attended a party at the Villa Mirafiori, where there are about 83 wholly helpless victims of the war. They had a lottery and some gifts. Kind friends gave me 45 francs, with which I was able to buy a number of gifts for them—knives, pipes, etc. Four of the boys had lost both hands—strong, competent-looking men, so good and patient and serene. It is terrible to be so entirely well otherwise and yet so helpless.

I am giving a marionette show at the villa in a few days. There is no form of entertainment so popular. I gave one for 450 soldiers last week in the big hospital here. The men were almost hys-

Photograph by courtesy of the Italian Military Mission

THE WAY TO AN OBSERVATION POST IN THE CADORE DISTRICT

These stairways were constructed for hundreds of feet up the almost impassable heights from the barracks to the artillery observation posts in the uttermost crags of the Dolomites. In the section shown there are more than 300 steps covering an ascent of perhaps a hundred yards almost straight up. The observatory at the top is about 9,000 feet high and 1,600 feet above the nearest barracks.

terical with merriment for nearly two hours. I am soon giving a show for a hospital in which Contessa Cadorna is especially interested. The show costs me between 50 and 60 francs each time, but it is money well spent.

HOSPITAL ON MULE-BACK FOLLOWS TROOPS

Since becoming one of the representatives of the Surgical Dressings Committee (Contessa de Robilant is the other representative), I find myself in touch with several hundred hospitals all over Italy, especially up at the front, and you cannot imagine how agonizing it is to be suddenly in this position and with comparatively so little to distribute.

Our work is recognized by the War Office, and we are given all sorts of rights of free transportation to the front, of course. Contessa de Robilant goes up about once a month to the hospitals herself, and has arranged for soldiers to take up our supplies about once a week. Her husband is the general who commands all the troops up in the Dolomites. Two of her daughters, splendid girls, nurse in a hospital which is packed upon mules and follows the army every time it advances. They work high up in the mountains, and are in Rome on leave now, as the snow is so deep in the advanced posts where they are stationed that there is at present no fighting.

The cold is so intense that their sheets freeze at noon when they hang them out to dry in the sun. They have 200 men or so come down daily from the trenches to get baths and changes, and I try to send them woolen clothes, fresh socks, etc.; for when there is an ample supply of these the men leave their soiled ones to be washed and mended and return greatly refreshed. The girls are so pretty and such competent

little nurses, just over 20 years of age! They came down from their hospitals on sleds a few weeks ago, as many of the roads were deep in snow.

Before going to the front they were nursing in a hospital down in the plains. When the soldiers in a ward where one of them was engaged heard she was leaving, they cried like children, hiding their heads under the sheets lest their companions should see them and make sport of their tears.

Through the Contessa de Robilant, I am in touch not only with all the hospitals in the Dolomites, but also with those in Albania and Saloniki and in the Corso. In fact, in the matter of being in close touch with the hospitals our organization is perfect. Our work is sanctioned by the War Office, which permits us to send our things up to the front very quickly and satisfactorily by special soldiers. It is wonderfully satisfactory to have such facilities, but heartrending not to have a great deal more to send.

A great and terrible advance is expected by every one in a month or six weeks and everybody is getting ready for it.

Our dear overgrown waiter, who serves us dinner upstairs, will be enrolled tomorrow. He makes me think of the story of Alice in Wonderland: so tall, just a child, and possessed of such immense hands. He has spent most of his life in Trieste in a café serving coffee. When war broke out he was interned. Then he escaped from the internment camp and got back to Italy, his real home being near Udine. And now he philosophizes as he clears away the things at night:

"Who would ever have thought it, Signora, nearly three years ago? And instead of being finished, as we thought it naturally would be, it seems as though it were just going to begin."

A SENTINEL TO GUARD HENS

I went to a hospital of 1,200 beds today. All cases in Rome go there first and then are distributed according to their ailments. Some stay permanently in the hospital while convalescent, and sometimes batches of wounded Austrian prisoners arrive in the great place. They always interest me. One is not allowed, as a rule, to talk to them; but I have conversed with them several times.

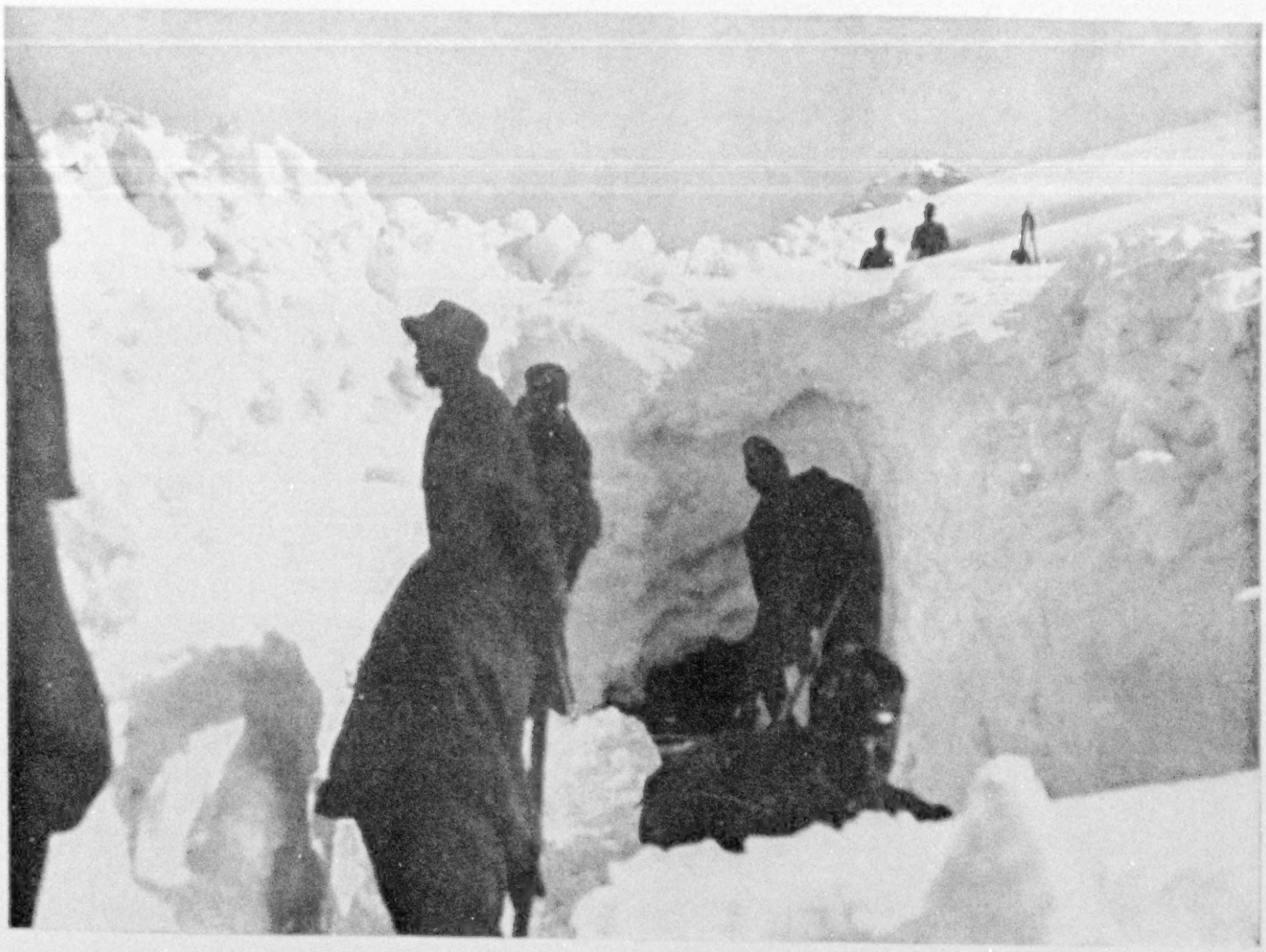
The colonel at the hospital made a rather touching appeal the other morning. He had built a chicken-house in the hope of having as many eggs for the hospital as possible, and wanted 50 hens immediately. M. presented him with 40 day before yesterday, and we went over to receive them and to pay on delivery. An expert among the wounded soldiers, a peasant, was found, and he chose those fowls he was sure would lay immediately.

You would have been amused at the whole scene—the farmer and wife, in costume, on a little cart, under a huge umbrella, arriving in state from the country, the very long discussion on the different points of each chicken, the crowd of soldiers, and the nuns gathered about the group. The chicken-house had just been completed, but the key had not been made; and so, to provide against any of the hens being stolen, a poor soldier had to stand sentinel all night.

I heard a story recently from an Alpine in Rome that you would like. A sentry in the high Alps, over 9,250 feet above sea-level (St. Moritz is 5,500), is on duty three hours and stands under a little roof, the snow falling steadily. Whenever this sentry or the one who replaces him is relieved, he has to be dug out by his companions. A long passage is shoveled out of the snow up to the little cave under the roof.

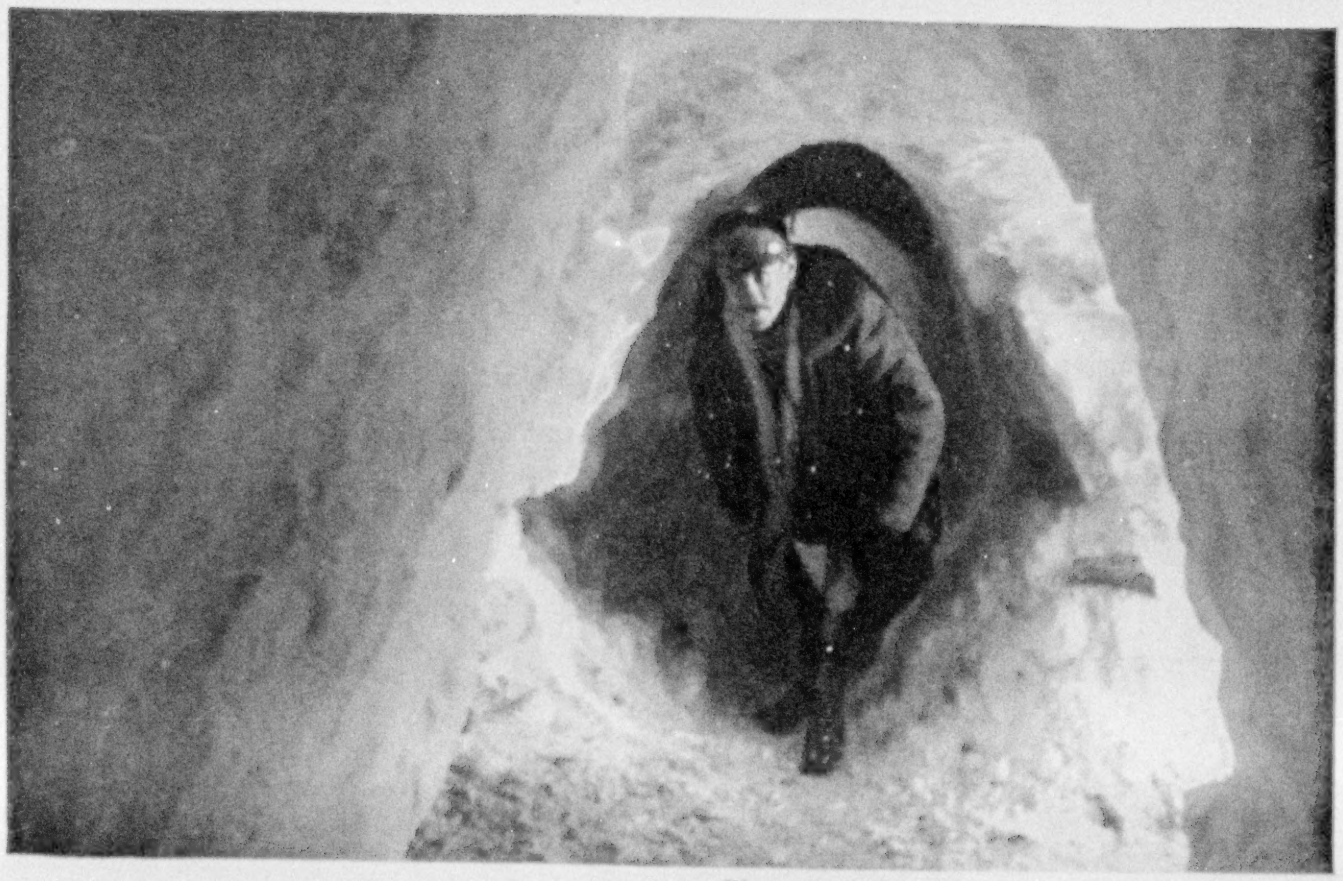
The Italians have had no idea of, and no means of knowing, the amount of wonderful supplies being distributed in Italy by the clearing-house (I mean the Italians officially); but now they begin to know and are indeed impressed and appreciative. The Contessa has the lists of all that has been distributed since the beginning of the war, and is publishing them abroad, by word of mouth and in the papers.

The gentlemen of the clearing-house were so kind and nice to me this morning. Sita has just gone to Sagrado, a small village, formerly Austrian, on the Isonzo, near Gorizia. The hospital is right within sound and sight of where



SNOW TRENCHES AT THE TOP OF XOMO COLLE, A HIGH PEAK IN THE CADORE DISTRICT

Snow in the mountains is both an advantage and a disadvantage. It makes marching difficult and exposes the armies to the terrors of the avalanche, but it makes trench digging easy and provides a ready breastwork.



Photographs from Comando Supremo, Italian Army

AN ITALIAN SNOW TRENCH IN THE TRENTINO

Photograph from Comando Supremo, Italian Army

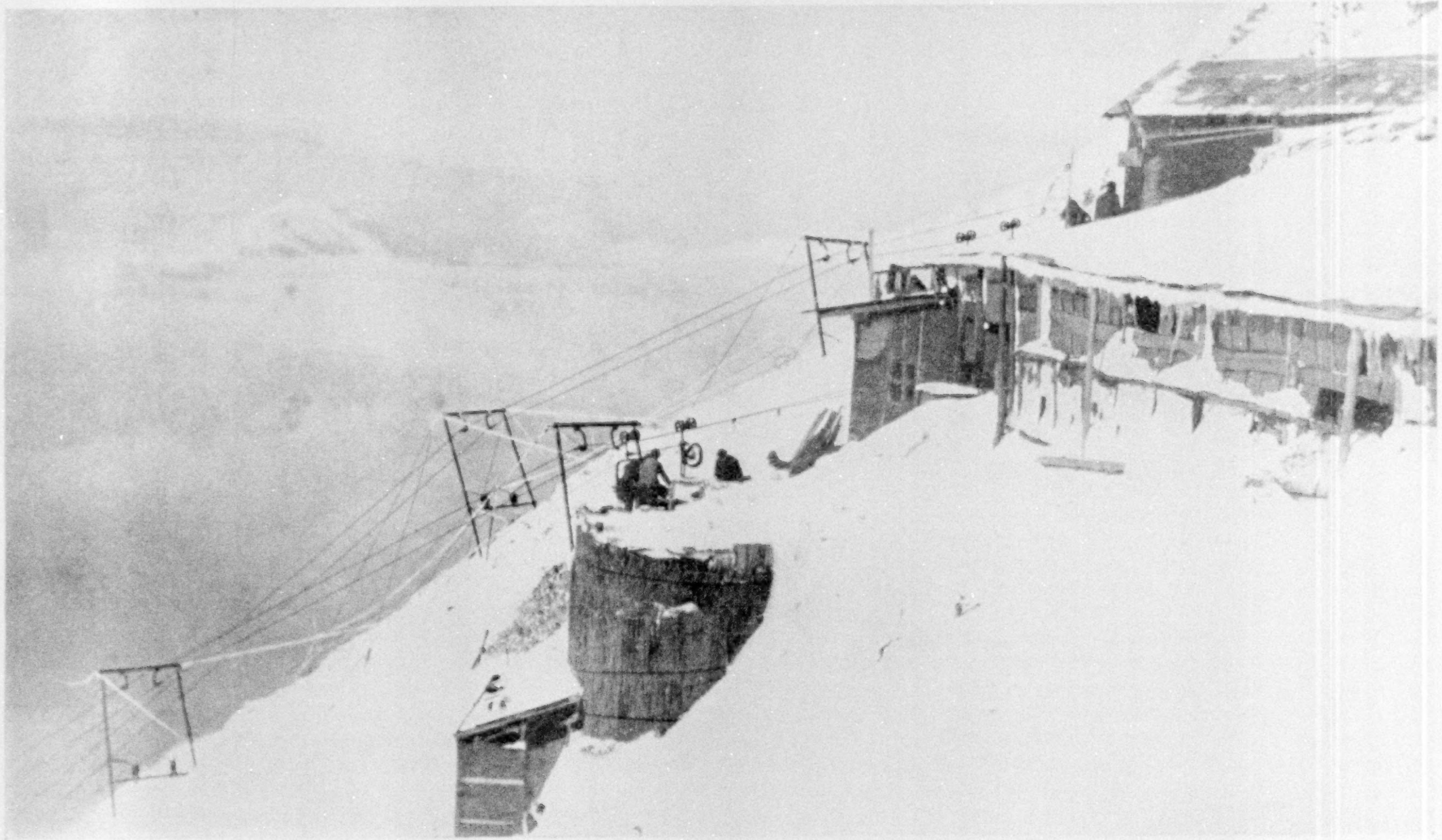
TRANSPORTING A BIG GUN IN THE CADORE DISTRICT

Guns like this can be brought into effective positions only over the best of roads. The Italians are probably the most remarkable mountain-road builders in the world, and the highways they have constructed at the front and back to their bases have excited the admiration of all who have seen them. Their military road building serves as a fine example for America's unpreparedness in the matter of a system of military highways.

the terrible fighting is going on. It is about a quarter of an hour from where we were stopping with Ramiro last autumn. She has all the gravest cases that are brought in from the battle and cannot travel. She appealed for several things urgently, among others "archetti reggi-coperte," iron frames to keep the bed covers from touching the wounded men, and the kind clearing-house people told me I might order 100 immediately.

ITALIAN CANTEEN IN AMERICAN CHURCH ENTERTAINS AMERICAN SAILORS

You read perhaps of a transport ship, English, sunk a while ago in the Mediterranean; 400 lost. The survivors are at Savona being looked after. English hospitals are being opened at the front in Italy, for some English guns are there now assisting in this terrific battle. I think they are going to try to transport men to Saloniki by land as much as possible, so as to avoid the sea. I am going this week to the station to meet the English troops. A canteen—which I shall also see this week—has been opened here in the American Methodist Church and school-rooms. They tell me the rooms are beautiful, and it promises to be the best club of the kind in Europe. The other day it was full of English soldiers



Photograph from Miss E. M. Bagg

A TELIFERICA STATION ON A MOUNTAIN TOP

Before the war the aërial tramway was utilized in various parts of the world for transporting materials across chasms and up mountain sides, but it remained for the Italians to adapt it to their necessity of negotiating the sheer heights in Alpine warfare. A young engineer of Milan is credited with having first suggested its present use, but it seems to have exceeded in usefulness his wildest dreams. Few facts concerning the extent of the system have been given out, but when this war is over a thrilling tale of engineering feats in its construction will remain to be told.

and sailors and some American sailors! You can't think what a sensation that gives me. A woman working there spoke as though they expected a number of Americans soon.

I am sending you some post-cards. The Capitol Museum is closed, but Manolo had it opened one Sunday morning and brought some of his pupils to see the statues. These pupils look quite happy and normal in the photo: as a matter of fact, they are all minus legs and one has lost a hand besides. They are learning to draw and carve, and Manolo means to lead them in practical directions, so that they can use their talents industrially and earn a good living. Some are highly gifted.

Mother and I have been spending the afternoon at the new club for English and American soldiers and sailors, and talking and chatting with some fine Irish and English sailors today.

This is the anniversary of Italy's declaration of war. I will write later and tell you of the procession we are going to see in a moment. It is nice that this great national fête day should be practically on my birthday, the 24th; but I think the first shot was fired on the 25th.

Seventy-five shipwrecked Englishmen, many officers among them, are expected any day now in Rome. Mother and I are going to help receive them. We do not know whether they have *just* been shipwrecked or whether some days ago.

NURSES UNDER FIRE

I shall be relieved when Dians arrives safely in Italy. The inclosed letter may interest you; it came tonight from Sita. She has nursed a good deal in Milan since the war, and last Christmas was at the front, among some of the very worst cases; some she could not talk or tell me about, they were so terrible. The worst case she spoke of was under a tent, so shot to pieces he could not be moved at all. She had just to sit beside this heap of human shreds and do what she could to help and comfort him during those last terrible moments. I hope she will keep up her strength, so as to stay on now, for she is doing very good work, I imagine, and the hospitals with women have so many details attended to that are neglected in those which have only men on the staff.

Contessina di R. left her hospital, where comparatively little was going on, and went to Gorizia for this advance. During the worst part of the fighting she worked three days and three nights without changing her clothes. Her hospital was struck, and she moved the wounded to cellars which were fire-proof, as the building had been a bank. She slept, after the rush the first night, in an old castle. This also was struck by the Austrians in the night, and the unoccupied wing was demolished. A splendid, brave girl; no nerves! She said the noise of the bombardment was deafening.

The Alpini on the Dolomites mostly live in the valleys below and their wives mend their socks. A little wool saved many men's lives the other day. It was reported to camp hospital in X, 4,800 feet high, that some wounded had been caught in a snowstorm at an Alpine pass. The road was blocked, the temperature many degrees below zero. We phoned through the mountains for the Alpini, and promised to rig every man in new socks, scarfs, and woolens who would bring back a wounded soldier. The men disappeared and nothing was heard of them for eight hours, when, one by one, they returned, each carrying a wounded man on his back, so that not one was left behind. Don't you think that was a priceless bundle of wool? Such feats happen daily. Nobody here knows what those men are enduring, and the spirit that keeps them up we can never repay.

Our Surgical Dressing Committee has been splendidly organized now by the Contessa di Robilant. We are in one of the most beautiful old palaces of Rome, one in which the German Emperor was once entertained, and expressed great envy of the ball-room, saying that he could never return the hospitality in any room in Berlin that could compare to this!

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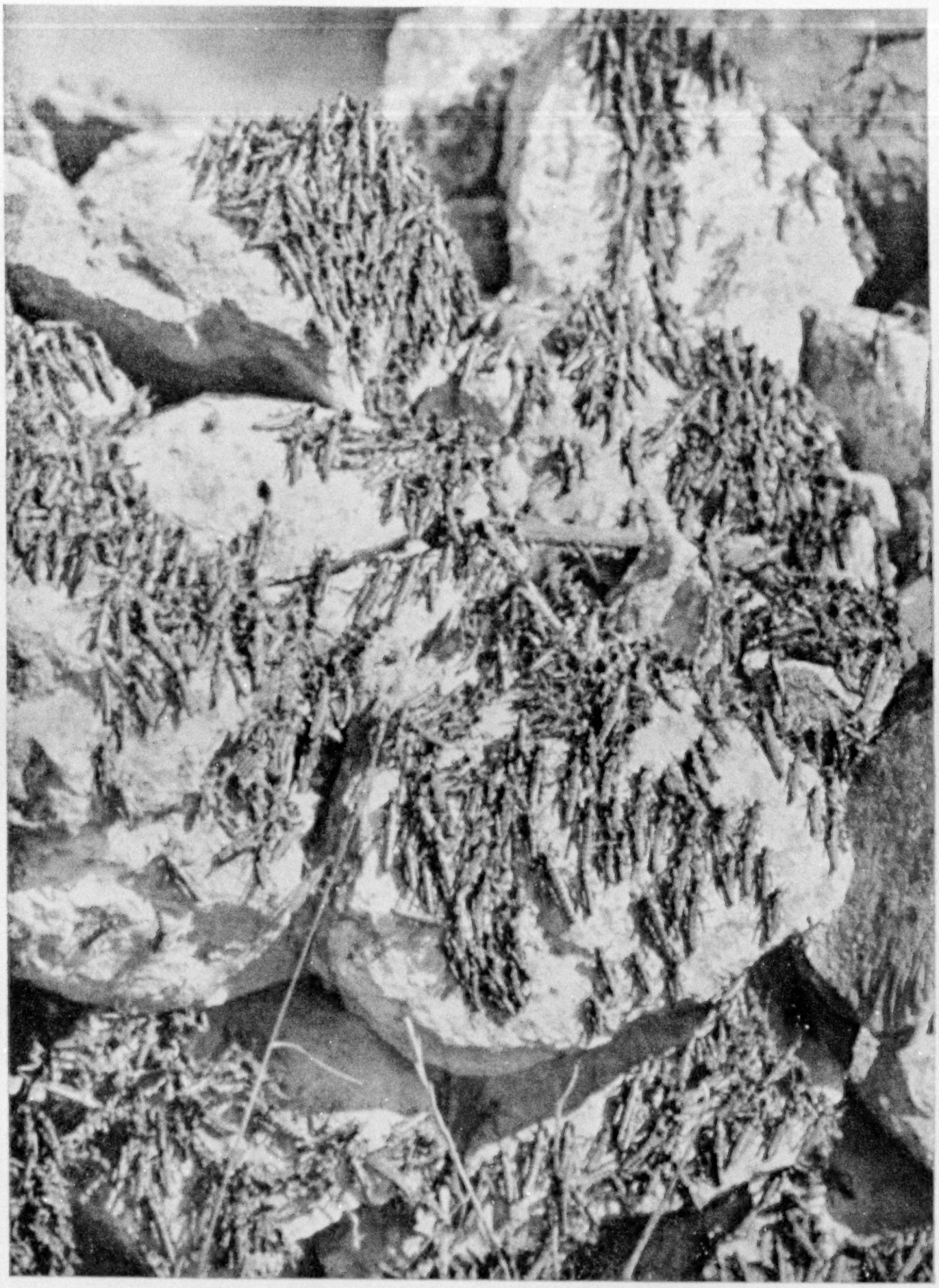

Photograph by American Colony, Jerusalem

A FORERUNNER OF FAMINE: LOCUSTS IN THE LARVA STAGE

The armies of men are not the only legions which spread desolation over fertile fields. There is no more dreaded precursor of famine than the locust, whose hosts destroy every grain of wheat and blade of grass growing in their path. Since the days of the Seven Plagues of Egypt this insect has been a synonym for crop failure and consequent famine.

FEARFUL FAMINES OF THE PAST

History Will Repeat Itself Unless the American People Conserve Their Resources

By Ralph A. Graves

"GIVE us bread!" is the despairing cry which today comes across the seas to America in a score of tongues from three hundred million people who stand on the brink of the abyss of starvation.

All the resources of the nations of Europe and Asia Minor have been diverted for three years from gainful pursuits to the destructive activities of war. Men have been forced to put aside the hoe and scythe; fertile fields have been gashed by trench and blasted by shrapnel until they can serve no purpose save as graves for the slain; the plowshare has been beaten into the sword, the fertilizer converted into high explosives.

Thus have the agencies of plenty been made to breed havoc over land and sea.

What is in store for mankind if America fails to respond with all her food resources to this call for help?

The fearful famines of history reveal to us what may happen—nay, what inevitably must happen—now, as in the past, with the difference that whereas famines of a bygone age took their toll in thousands, the famine of today, if it materializes, will compute its death roll in millions.

Grim, gaunt, and loathsome, like the three fateful sisters of Greek mythology, war, famine, and pestilence have decreed untimely deaths for the hosts of the earth since the beginning of time. A veritable trinity of evil, the three are as one scourge, equal in their devastating power and in their sinister universality.

Twentieth century civilization, with science and industry for its allies, grappled with these potent forces of destruction, and there were those who, as recently as the early summer of 1914, believed that the good fight had been won; that never again would the pleasant places of earth be baptized in the blood of a peaceful people; that never again would ravening plague, following through the fields harvested by cannon, claim its victims by the tens of thousands; that never again would the silent specter of hunger stalk through the world with but one nation to stay its progress.

But the era of permanent peace is yet to be won by the sword of democracy, and science finds that she still has her battles to wage against the armies of contagion mobilized in the charnel houses of ravaged nations.

AMERICA ALONE CAN DEFEAT MAN'S THIRD FOE

There is still a chance, however, to defeat mankind's third great foe—famine.

Is the struggle to feed the world worth the sacrifice which America will be called upon to make? Here are presented a few pages from history's black chronicle of the suffering and the degradation which famine has wrought in every clime and among every people. If to save mankind from a recurrence of these horrors is a goal worthy the industry and the resources of our republic, the answer is plain.

A survey of the past shows that war, pestilence, and famine always have been related, sometimes one and sometimes another being the cause, and the other two the effect. Where one of the trio has occurred the others, sometimes singly, but usually together, have followed.

The primary cause of famine almost invariably has been a failure of food crops. This failure has often resulted from a variety of natural causes—long-continued drought, blasting hot winds, insect armies, earthquakes, severe and untimely frosts, and destructive inundations.

But war also brings in its train crop shortage by withdrawing from the fields the men required to till the soil, and by devastating harvest land in order that an enemy may be vanquished through starvation.

Even when the fires of conflict have burned themselves out, the grip of famine frequently has remained upon a land because the husbandman either cannot or will not immediately resume his productive function. Oftentimes a whole people's industrial fiber has been impaired by the hardships of war and by moral degeneracy incident to camp life, so that a full generation has been required to restore their country's thrift and enterprise.

Pestilence is the inevitable handmaiden of both famine and war, for the dead of the battlefield breed contagion which finds easy victims among those whose powers of resistance have been sapped by lack of nourishment.

Thus the three great agencies of wholesale destruction constitute a terrible triangle, each force coördinating with the other two; and famine is the base line.

EARLIEST RECORD OF A FAMINE

Among the earliest authentic records of history is the famous "stele of famine," recently discovered carved on a tomb of granite on the island of Sahal, in the first cataract of the Nile. Egyptologists differ as to its exact antiquity, but there is evidence to prove that it was chiseled in the time of Tcheser (or Tosorthrus), who held sway over Egypt nearly two thousand years before the time of Abraham.

"I am mourning on my high throne," lamented this monarch of ancient times, "for the vast misfortune, because the Nile flood in my time has not come for seven years. Light is the grain; there is lack of crops and of all kinds of food. Each man has become a thief to his neighbor. They desire to hasten and cannot walk. The child cries, the youth creeps along, and the old man; their souls are bowed down, their legs are bent together and drag along the ground, and their hands rest in their bosoms. The counsel of the great ones of the court is but emptiness. Torn open are the chests of provisions, but instead of contents there is air. Everything is exhausted."

Thus runs the first chronicle of mankind's suffering in days of famine.

A period greater than that which stretches between the Crucifixion and the present day elapsed after the famine of Tcheser's reign before Joseph arrived to hold sway over this same land of Egypt. As the chief administrator for one of the Hyksos Pharaohs, he prepared for seven lean years which were to drive his brothers and his aged father, Jacob, out of Canaan, down into the valley of the Nile in search of corn.

THE FAMINE OF JOSEPH'S DAY

While the suffering which accompanied this famine was perhaps in no degree comparable to the devastation wrought by the failure of crops in subsequent periods of the world's history, no other has a stronger hold upon the imagination of western civilization, for the details of the dearth are set forth in Biblical records of engrossing interest.

It was during Joseph's administration that there was inaugurated the system of land rentals in Egypt which has survived to this day in many parts of the earth, notably in India. By the end of the second year of the famine the people had given to the Israelite all of their money and all of their cattle in exchange for corn. They had naught else with which to purchase food except their land. This they eventually surrendered and the Pharaohs became the great land-owners of the Nile Valley, while the peasants became serfs, paying thereafter to their masters a full fifth of the yield of their farms each year.

In all, ten famines are recorded in the Bible; but none, save this in which Joseph plays so important a rôle, was of more than restricted significance, either as to territory or influence on history.

One of the other nine, however, is worthy of mention for its romantic interest—a ten-year famine which drove Naomi and her husband out of the land of Judah into the country of the Moabites. At the end of the decade of crop failures, when the widowed and child-

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bereft sojourner decided to return to her own people, the literature of the world was enriched for all time by Ruth's matchless expression of woman's loyalty and devotion to woman in her "Entreat me not to leave thee, or to return from following after thee."

Two other biblical famines are noteworthy as preludes to the depravity to which hunger brought mankind in succeeding generations. The first authentic record of cannibalism as a result of famine is found in the sacred recital of the siege of Samaria by Ben-hadad, King of Syria, in the ninth century before the dawn of the Christian era:

"And as the King of Israel was walking upon the wall," so runs the account in the Second Book of Kings, "there cried a woman unto him, saying, Help, my lord, O King. . . . This woman said unto me, Give thy son, that we may eat him today, and we will eat my son tomorrow. So we boiled my son, and did eat him; and I said unto her the next day, Give thy son that we may eat him; and she hath hid her son."

It was in this same famine that it is recorded an ass's head was sold for fourscore pieces of silver (probably about $50) and "the fourth part of a cab of dove's dung [a pint] for five pieces of silver."

A hundred years after the Samarian famine Rome's dawn upon the horizon of history was signalized, according to Plutarch, by a frightful pestilence and famine. Blood or crimson-colored insects fell from the clouds; disease, starvation, and the sword ravaged all Campania.

From this baleful beginning Rome's early history was punctuated by a succession of famines, pestilences, and wars; but none marked by any outstanding severity or event which focuses human interest until the middle of the fifth century before the Christian era. Beginning 450 B. C., however, there was a series of famines extending over a period of nearly twenty years.

In one season of particular severity thousands of desperate people flung themselves into the Tiber to escape the terrible suffering of hunger.

It was to such distress that the plebeian knight, Spurius Maelius, ministered, importing corn and selling it at low rates or giving it away to the starving. This charity made him the idol of the common people and therefore an object of suspicion to the patrician class. The latter professed to see in such bounty an attempt on the part of the public benefactor to make himself king.

THE ROMAN JOSEPH SLAIN

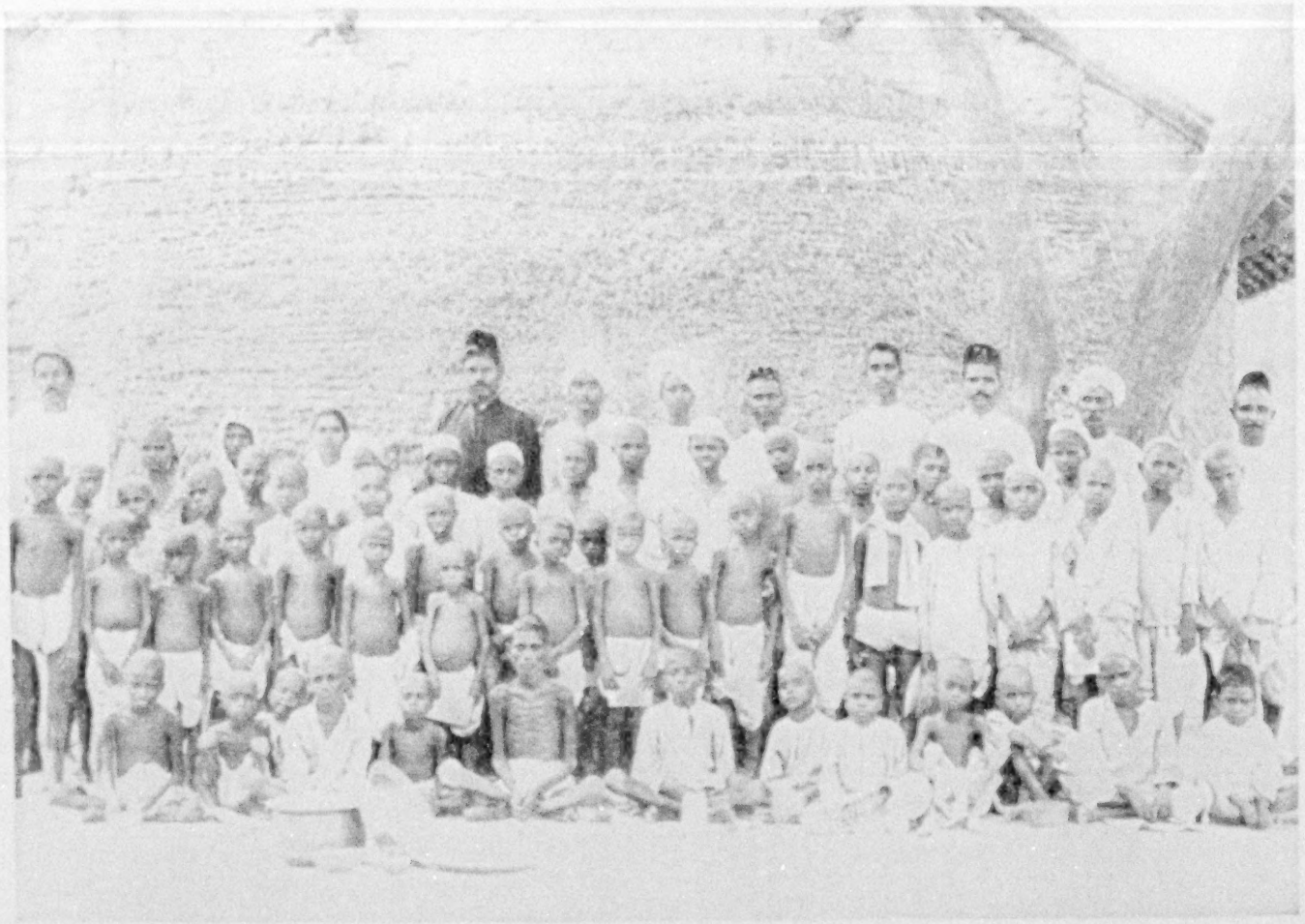
In this supposed extremity an appeal was made to Cincinnatus, who had recently returned to his farm and his plow after his brief dictatorship, during which he had saved Rome. Maelius refused to appear before the dictator; whereupon Servilius Ahala, Cincinnatus' master of horse, discovering the knight in the crowd in front of the forum, struck him dead.

Thus perished the Roman counterpart of Joseph, with the difference that Maelius was perhaps a self-seeking philanthropist, whereas the Israelite in the land of the Pharaohs sought no personal aggrandizement, but profit for his king.

Some fifty years after the death of Maelius, the Gauls, led by Brennus, brought all three of the great scourges of mankind—war, pestilence, and famine—within the very walls of Rome. Concerning this period the historians of a later era wove a series of heroic legends as picturesque as the Arthurian tales.

It was at this time that the Roman senators, after the defeat of their army at Allia, put on their robes of office and seated themselves in their accustomed places to await in silence the arrival of the barbarians and their own death. The imposing austerity of the city fathers for a moment struck the invaders with awe; but when one of the soldiers plucked the beard of a senator and was smitten by the outraged patrician, all the inhabitants were put to the sword and the city reduced to ashes.

Marcus Manlius and a faithful band still occupied the citadel, however, and for seven months they held it in the face of dire famine. The ranks of the invaders in the meantime were ravaged by pestilence, caused by their failure to bury



Photograph from Foreign Missions Library

ORPHAN BOYS OF INDIA, WHO OWE THEIR LIVES TO THE PROMPT RELIEF MEASURES ADOPTED IN THE FAMINE OF 1900

In spite of the fact that its peasants are among the most frugal in the world and its wheat fields, under favorable conditions, are among the most fertile, India has suffered more from famine than any other country. The density of population in certain areas and the absolute dependence of crops upon an abundance of rain account for the toll which starvation has exacted in this vast empire for 2,000 years.

the bodies of their victims. It was during this siege that the Roman youth, Pontius Cominius, swam the Tiber "on corks," and by a secret path scaled the garrison hill, bringing important news to Manlius.

In the morning the path was discovered by the enemy, and the following night the Gauls began the ascent, their secret attack being frustrated only through the cackling of the geese in the temple of Juno, which awakened Manlius in time for him to hurl the leading assailant down upon his comrades and thus save the citadel.

Famine and pestilence continuing, the Romans finally agreed to ransom their desolated city for a thousand pounds of gold. In the process of weighing the treasure they protested against the cheating of the barbarians; whereupon the Gallic leader cast his sword into the scale, crying, "Vae victis" (Woe to the conquered), an admonition which, as the present European conflict proves, has not lost its significance in the more than twenty centuries which have rolled over the war-racked world since that direful day.

One of the earliest chiefs of systematic famine relief work was Augustus Cæsar, who was at war with the Parthians when summoned back to Rome by the disaster of 23 B. C., when the Tiber overflowed, causing wide-spread suffering.

The starving plebeians proclaimed him dictator and urged him to assume control of the corn supply, which he did with exceptional skill and industry. He sent ships to many quarters of the Mediterranean to collect corn, and placed his grandson, Tiberius, in charge of the work of unloading the grain at Ostia and transporting it to the capital, all of which was done with great dispatch.

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A FAMILY OF FAMINE SUFFERERS IN INDIA

In twenty-three famines which occurred in India between 1769 and 1900 more than 25,000,000 natives perished. Some of the most terrible periods of distress have befallen the empire at times when the British Government believed that it had solved the problem of famine relief.

SHIPS AND MILITARY HIGHWAYS SAFEGUARDED ROME FROM FAMINE

From the time of Augustus, throughout the days of the empire, Rome seldom suffered from famine—a striking contrast to the frequency of this affliction in the days of the infant republic. The nation's sources of supply were now so numerous and her far-flung provinces so fruitful that when crops failed in one quarter there was sure to be a bountiful harvest in some other part of the Roman world. Two other factors which contributed materially toward preventing shortage in food supplies throughout the empire were the excellence of the military highways and the splendid fleets which sailed the Mediterranean.

In striking proof of the manner in which the empire's transportation system served to check the ravages of famine, Pliny relates that when, during Trajan's reign, Egypt experienced a low Nile which threatened a great dearth, immediately corn ships were dispatched from other provinces and wide-spread suffering was prevented.

"This vain and proud nation," writes the Roman historian, "boasted that though it was conquered it nevertheless fed its conquerors. But this most fruitful province would now have been ruined had it not worn Roman chains."

Of course, there were some exceptions to this general rule. There was, for example, that terrible period of suffering from 79 to 88 A. D., when the Roman world seemed to be shaken to its physical foundations. In addition to the devastating drought and famine which swept over the Italian peninsula, during which 10,000 citizens are said to have died in one day at Rome, there followed the shock of earthquakes and the cataclysmic eruption of volcanoes. Herculaneum and Pompeii were overwhelmed with volcanic ash and lava at this time, and Syria and Africa were blighted by pestilence and famine.

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Photograph by A. W. Cutler

THE DINNER POTS ARE NO LONGER EMPTY IN THE COTTAGES ON THE CONNEMARA COAST OF IRELAND

Extreme poverty reigned in the Emerald Isle years ago when the potato crop was a failure, thousands dying when resulting famine set in. Happily, conditions are greatly improved among the Irish peasantry today. Although it is apparent that she could use them to advantage herself, this mother is probably knitting socks for her soldier son in the trenches of Flanders.

Tacitus left grim pictures of the distress and suffering which afflicted the civilized world in that era, when houses were filled with dead bodies and the streets with funerals.

A peculiar feature of the famine and pestilence which visited the Roman province of Apulia a hundred years later was the amazing swarm of locusts which filled the air and covered the ground. Sicinius was dispatched with an army to try to battle with the winged pests. Thousands of peasants lay down to die on the highroads, and so dire was the pestilence which accompanied the famine that even the vultures refused to feed upon the fallen.

This scourge of starvation and pestilence extended as far west as England. During a brief period 5,000 people died daily in Rome, where the only method of combatting disease was the practice of "filling the noses and ears with sweet-smelling ointments to keep out the contagion."

It is not improbable that the suffering of this time was a "flareback" from the pestilence of 166 A. D., which had been borne to Rome from Arabia, where, according to Ammianus Marcellinus, it had emanated from the foul air which escaped from "a small box opened by a Roman soldier, Pandora-like, at the capture of Seleucia."

Not only did famine and pestilence spread from Arabia to the banks of the Rhine, but also "inundations, caterpillars, vapors, and insects," leaving in their wake decayed and deserted villages throughout Gaul.

EGYPTIAN FAMINES UNDER MOHAMMEDAN RULE

Probably in no other country in the world has a people been brought to such a low ebb of morality or become so completely lost to all semblance of rational humanity as in the series of famines which swept over Egypt during the tenth, eleventh, and twelfth centuries, under Mohammedan rule.

A low Nile in 967 A. D. resulted in a famine the following year, which swept away 600,000 people in the vicinity of the city of Fustat. G'awhar, a Mohammedan Joseph, founded a new city (the Cairo of today) a short distance from the stricken town and immediately organized relief measures.

The Caliph Mo'izz lent every assistance to his lieutenant, sending many ships laden with grain; but the price of bread still remained high, and G'awhar, being a food controller who had no patience with persuasive methods, ordered his soldiers to seize all the millers and grain dealers and flog them in the public market place. The administrator then established central grain depots and corn was sold throughout the two years of the famine under the eyes of a government inspector.

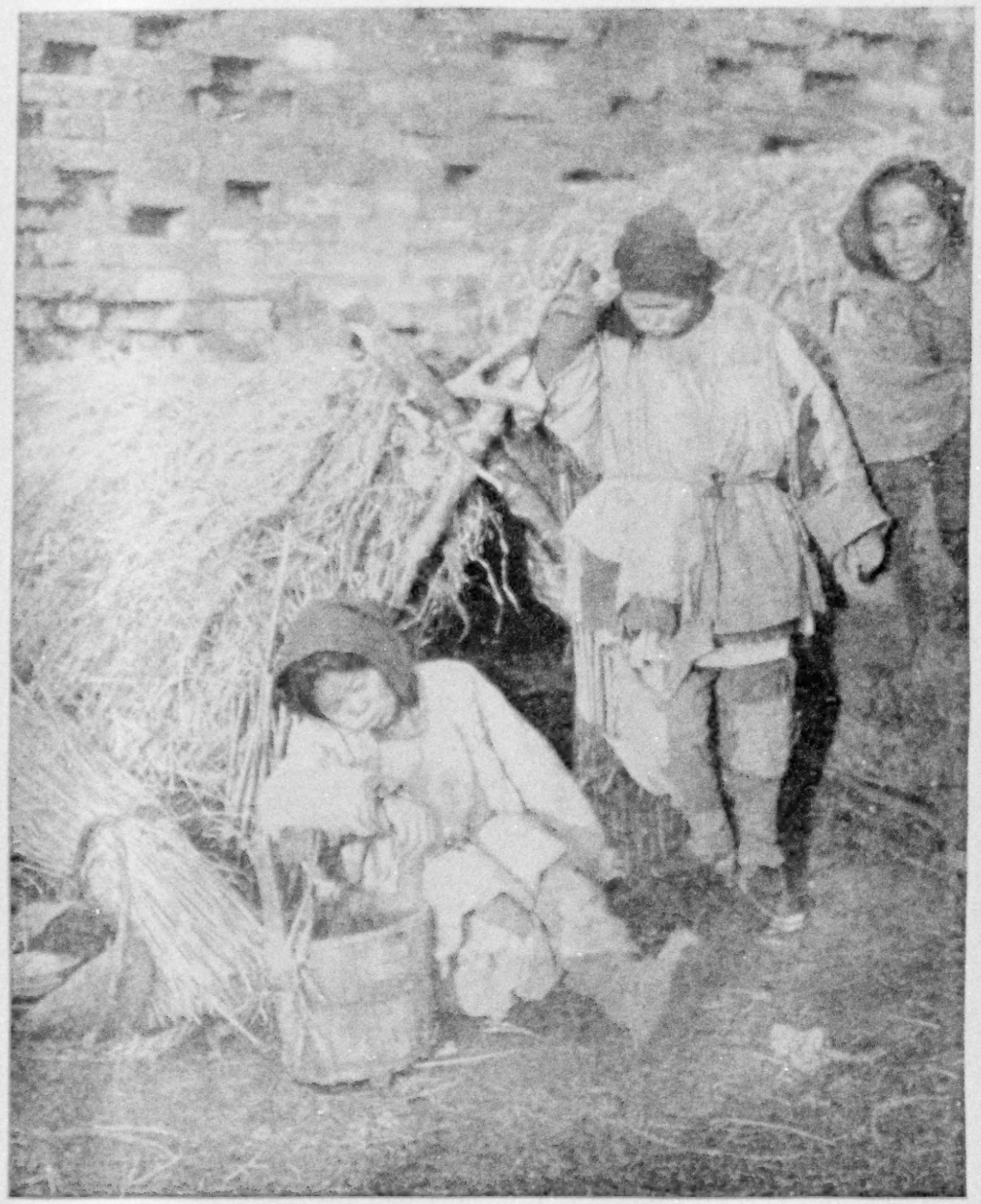
In taking these steps to mitigate the suffering of the Egyptians the Mohammedan viceroy was far in advance of the European rulers of his day, but in allowing the natives to cast their hundreds of unburied dead into the Nile, thereby tainting the waters all the way to the sea, he failed to evince any glimmer of understanding of the laws of sanitation.

TERRIBLE PUNISHMENT FOR A REBEL

During this famine and the subsequent plague a petty official of lower Egypt revolted against G'awhar. The rebellion was suppressed with some difficulty, but the leader was finally captured in Syria. As an example of the fate which would befall all rebel leaders in times of national calamity, G'awhar made the unhappy captive drink sesame oil for a month, after which his skin was stripped from him and stuffed with straw, then hung upon a beam and displayed throughout the country.

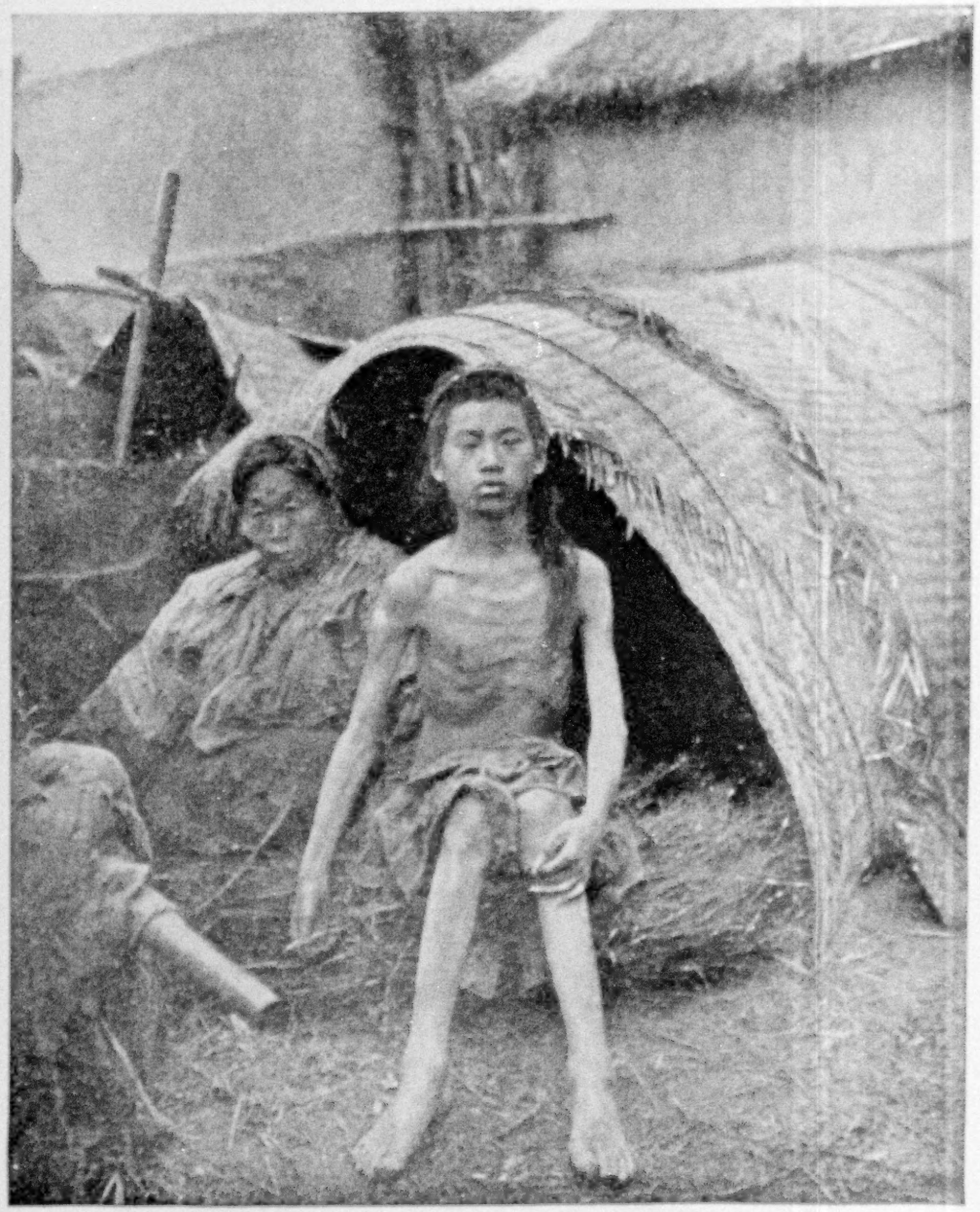
There was no G'awhar to conduct the relief work during the next Egyptian famine, which came in 1025, during the Caliphate of Zahir. The suffering, therefore, was much more wide-spread. It became necessary to prohibit the slaughter of cattle, and there was no meat to be had anywhere, as fowls, the common meat of Egypt, had quickly disappeared.

The stronger among the population turned brigand and began to prey upon the weaker members of society. Caravans and pilgrims were attacked and Syrian bands began to invade border towns.



HUNGER PAINS HAVE DONE THEIR WORK; THE END IS NOT FAR OFF

In the four great famines of 1810, 1811, 1846, and 1849 the death toll is estimated to have been 45,000,000 Chinese. During the three years of dearth (1875-1878) which afflicted four provinces in the district known as the Garden of China nine millions perished in an area the size of France.



FACING WINTER AND STARVATION IN THE CHINESE FAMINE OF 1910-1911

The lot of the Chinese boy is supposed to be much brighter than that of his sister, but in times of famine it is the daughter of the household who frequently fares best; for parents find it both expedient and humane to sell the girls of the household, not only for the sake of the purchase money, but because the owner will not allow his newly bought slave to die of hunger.

Photographs from Board of Foreign Missions

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SUPPLIANTS FOR PUBLIC BOUNTY IN TIMES OF FAMINE: INDIA

One of the difficulties which the British Government has encountered in its relief work in India has been the problem of caste. In the great Orissa famine thousands of Santals perished in the midst of ample supplies before it was discovered that a peculiar tenet of this tribe forbids its members to touch food cooked by Brahmins. The more enlightened native princes have been quick to coöperate with the British officials in aiding the starving millions, a notable instance being the foundation of the "Indian People's Famine Fund" by the Maharaja of Jaipur, who contributed $600,000 to the charity out of his private purse.

People flocked to the palace in masses, crying piteously for relief at the hands of the Commander of the Faithful; but no help was to be had in that quarter, for the palace itself was so short of provisions that when the banquet for the Feast of the Sacrifice was spread the slaves of the royal household broke in and swept the tables. Slaves began to rise in revolt in all parts of the country and it became necessary for citizens to organize committees of safety for self-protection, the government granting permits to kill the bondmen. The vizier, el-Gargarai, was himself imprisoned in his own house. With an ample Nile in 1027, however, the period of suffering came to an end.

A third and far more terrible famine came in 1064, and, like that which afflicted the land in the days of Tcheser and of Joseph, lasted for seven fearful years. To the hardships of starvation were added the miseries of civil warfare. Nasir-ed-dawla, commander-in-chief of the Fatamid army, upon being deposed by the Caliph Mustansir, quickly gained the support of bands of Arabs and Berbers. Black regiments were soon in control of all upper Egypt.

Forty thousand horsemen of the Lewata Berbers descended upon the delta of the Nile and swept all before them, cutting dikes and destroying canals with the malign purpose of spreading starvation. Both Fustat and Cairo were cut off from supplies, and to add to all these tribulations the Nile failed to come to a flood in 1065. The result was indescribably terrible.

The peasantry, not daring to venture into their fields for fear of the armed bands of brigands, were unable to carry on any agricultural pursuits; so that the dearth of one year's harvest was pro-

Photograph from Board of Foreign Missions

CHINESE INSPECTOR AND HIS ASSISTANT DISTRIBUTING CLOTHING TO A FAMILY OF SEVEN FAMINE SUFFERERS

Added to the distress occasioned by the shortage of food in China were the hardships of an unusually severe winter in 1910-1911. The whole western world responded generously to the appeal for aid, clothing and wheat being wisely distributed.

longed into seven. Prices soared to heights probably never before reached in the Near East.

A single cake of bread sold for 15 dinars (the value of a dinar is slightly more than $2.50), five bushels of grain sold for 100 dinars, and eggs were scarce at a dinar each.

Cats and dogs brought fabulous prices, and women, unable to purchase food with their pearls and emeralds, flung the useless jewels into the streets. One woman, according to a historian of the time, gave a necklace worth 1,000 dinars for a mere handful of flour. The caliph's stable, which had numbered 10,000 horses and mules, was reduced to three scrawny "nags."

HUMAN FLESH SOLD IN OPEN MARKET

Rich and poor suffered on equal terms. Finally the desperate people resorted to revolting cannibalism. Human flesh, which was sold in the open market, was obtained in the most horrible manner. Butchers concealed themselves behind latticed windows in the upper stories of houses which looked out upon busy thoroughfares. Letting down ropes to which were attached great meat hooks, these anglers for human flesh snared the unwary pedestrians, drew their shrieking victims through the air, and then prepared and cooked the food before presenting it for sale in the stalls on the street level.

This seven years' reversion to savagery induced by starvation had its companion period of suffering and degradation in the same country during the years 1201 and 1202. A gruesome picture of the harrowing events has been preserved in the writings of Abd-el-Latif, a learned Bagdad physician who lived in Cairo during the days which he describes in such horror-awakening detail.

Whole quarters and villages became deserted during the famine which followed the low Nile of 1200 and 1201, according to this chronicler, who maintains that the starving populace ate human flesh habitually. True, the punishment meted out to those detected in the crime was death at the stake, but few criminals were caught, and the custom could be practiced with impunity by parents who subsisted on their own children. Men waylaid women in the streets and snatched babies from their mothers' arms, and the literal physician recites at length the various dishes into which the murderous kidnappers converted their infant forage.

The very graves of Egypt were ransacked for food. The roads became death traps, while flocks of vultures and packs of hyenas and jackals mapped the march of the cannibal outlaws. Of course, the piles of unburied dead bred pestilence of a virulent type.

It is recorded that in a single month one piece of property in Cairo passed to forty heirs in rapid succession, so sweeping was the mortality.

In this famine man seems to have plunged to the utmost depths of degradation and suffering.

Vastly different were the scenes which accompanied the severe Egyptian famine of 1264, chiefly because there had arrived in the country a man of rare administrative ability—Bibars, a native of Kipchak, between the Ural Mountains and the Caspian. It is well to study Bibars, for, coming shortly after the two anthropophagous debauches of the Egyptians, his conduct of affairs demonstrates what a firm hand might have been able to accomplish in the preceding emergencies.

A tall, robust figure, Bibars won from a historian of that period the tribute that "as a soldier he was not inferior to Julius Cæsar, nor in malignity to Nero." Yet he was a sober, energetic, and resourceful executive, just to his own people and lenient toward his Christian subjects.

This former slave, who brought only £20 when sold at auction, because of a cataract on one of his eyes, was the real founder of the Mameluke Empire. He met the famine situation promptly and vigorously, regulating the sale of corn wisely, and compelling his officers and emirs to support the destitute for three months.

Nor did he stop with these measures. With astonishing forethought, considering the age in which he lived and the people over whom he ruled, he attempted by scientific isolation to eradicate contagious diseases. Brothels and taverns

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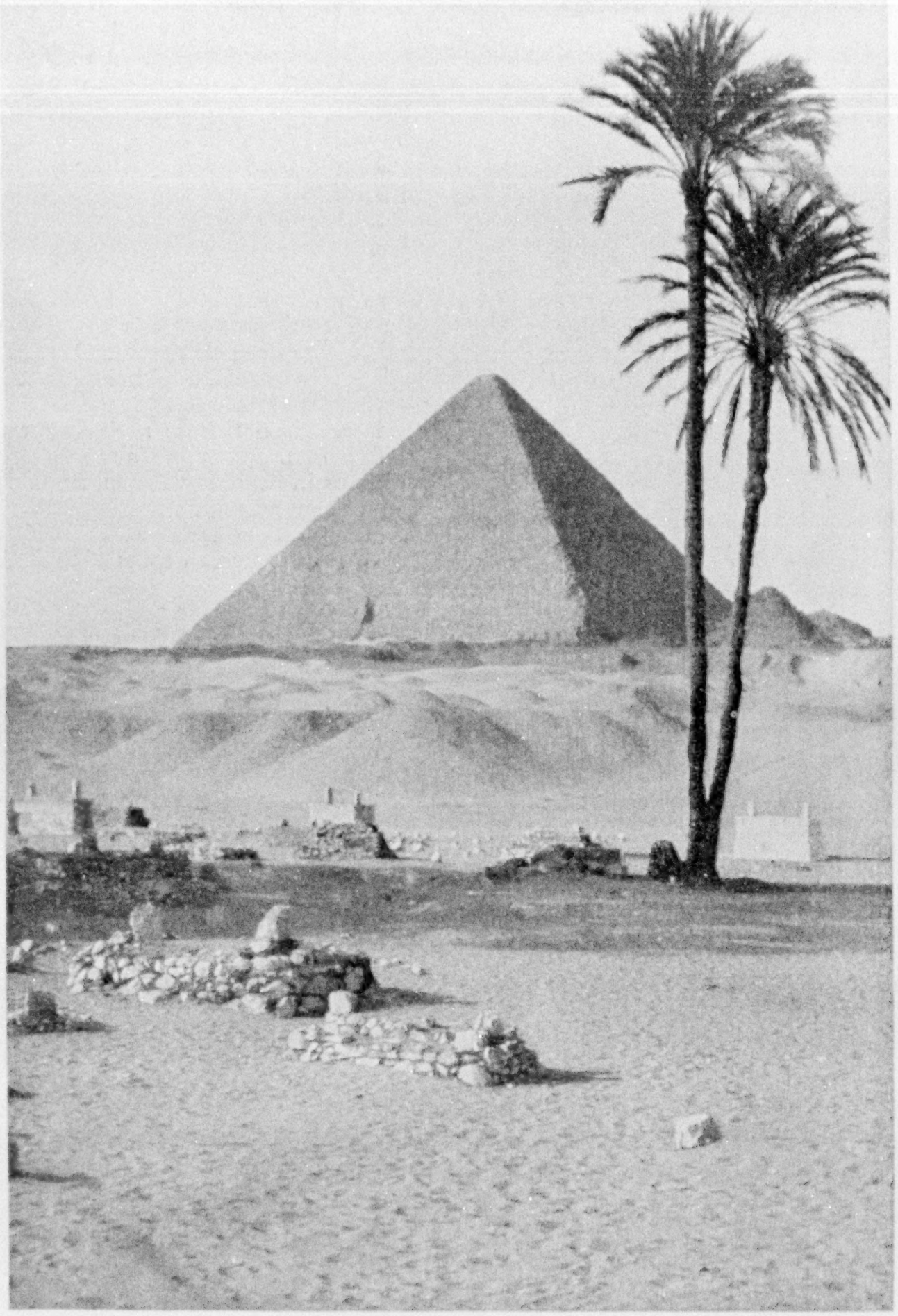

Photograph by Earle Harrison

FORTY CENTURIES LOOK DOWN UPON A LAND OF ALTERNATE STARVATION AND PLENTY

Since the beginning of recorded time Egypt has been a land of plenty when the Nile has overflowed in its proper season; but when the waters have failed to cover the great valley, instead of being the granary of the Near East, this country of the ancient Pharaohs has been a region of direst suffering.

were closed and many other measures were taken looking toward a healthier and a cleaner Cairo.

FAMINES IN ENGLAND

The story of famines in England has been a gloomy one from earliest times. At the beginning of the eighth century a dearth, which extended to Ireland, drove men to cannibalism. It was not until the reign of Aethelred the Unready, however, that "such a famine prevailed as no man can remember," from 1005 to 1016.

Those chroniclers who were wont to see bad conditions at their worst declared that half the population of the larger island perished. But it must be remembered that much of the mortality of this period was occasioned by the wars between Aethelred and Sweyn the Dane, the latter being forced by the famine to retire from England for a time.

Naturally, the era following the advent of William the Conqueror was one of wide-spread starvation and pestilence among the English peasantry. During the last thirty years of the eleventh century, nine were years of dire distress.

So great was the dearth in 1069 that the peasants of the north, unable longer to secure dogs and horses to appease their hunger, sold themselves into slavery in order to be fed by their masters. All the land between Durham and York lay waste, without inhabitants or people to till the soil for nine years, says Beverly, and another writer accuses the destitute of cannibalism.

There were many sections of England which were unaffected by this famine, however, and had there been better means of communication and conveyance of supplies the suffering would have been greatly mitigated. A factor which contributed to the seriousness of the situation was the burden of taxes exacted by the conquerors. Peasants became discouraged, realizing that the fruits of their labor were taken from them as fast as earned.

There were sporadic periods of suffering during the succeeding reigns of William Rufus and Henry I, in the civil wars of Stephen's times, and under Henry II. But the next dearth which especially quickens the sympathy was that which befell the people in the days of Richard Cœur de Lion, the Crusader. There is a brief reference to the famine of this period in "Ivanhoe."

Starvation was followed by a pestilential fever which sprang "as if from the corpses of the famished." Ceremonial burial was omitted except in the cases of the very rich, and in populous places the victims were interred in shallow trenches, a practice followed at a later period when the Black Death killed its millions.

While backward seasons were contributing factors, the responsibility for the two great famines of Henry III's reign is to be laid at the door of the government itself. In the first of these (1235) 20,000 persons are said to have died in London alone. The suffering in 1257-1259 was even worse, for the whole kingdom had been drained of its coinage by the taxes which the king had levied to pay German troops and to buy electoral votes for his brother, the Earl of Cornwall, who was a candidate for the imperial crown of the Holy Roman Empire.

FIRST CURB ON THE MIDDLEMAN

It was during this famine that England for the first time imported from Germany and Holland grain to alleviate the suffering of her poorer classes. The Earl of Cornwall himself sent sixty shiploads of food, which was sold for his account to the starving. More grain was brought into the country than had been produced the previous season in three counties. The following year (1258) there was a bountiful harvest, but destructive rains caused the heavy crops to rot in the fields, and even the grain which was gathered became mouldy.

The first ordinance in English history designed to curb the greed of the middleman was passed during this time of shortage in food supplies.

Few English kings have lived through greater periods of distress than Edward II, who was scarcely able to secure food for his own immediate household when the heavy rains of 1314 spoiled the harvests. Misery was wide-spread and intense; the dead lined the roadsides;

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everything imaginable was eaten—dogs, horses, cats, even babies. The jails were crowded with felons, and when a new criminal was thrown into a cell he was seized upon by the starving inmates and literally torn to pieces for food.

With the exception of the present world war, perhaps no other calamity that ever befell the human race can be compared with that of the Black Death and the accompanying famine, which afflicted all western civilization during the middle decade of the fourteenth century. Its toll has been variously estimated at from one-fourth to three-fourths of the entire population of Europe. Certainly it was not less than 20,000,000 people.

There always has been a certain degree of doubt as to the exact origin of this plague; but one of the most circumstantial hypotheses is that the seeds of destruction were sown in northern China, when a great inundation destroyed the crops and hundreds of thousands became the victims of starvation. Rats spread pestilence abroad.

One of the first places in Europe where the Black Death appeared was at a small Genoese fort in the Crimea, the western terminus of the overland Chinese trade route. The Tatars were besieging the fort at the time, and Chinese merchants took refuge there. The siege was lifted by the investing army, which fled from the plague, thus spreading the infection southward into Asia Minor, Syria, and Egypt. Ships from the Euxine carried the contagion to Constantinople and to Genoa, and thence it radiated, fanshape, throughout the Mediterranean littoral.

THE BLACK DEATH IN ENGLAND

In August, 1348, England's first Black Death victim succumbed in Dorsetshire. By November it had reached London. By the summer of 1349 it had dragged its pall of putrefaction over the entire island, including Scotland. Norwich, which had been the second city of the kingdom, dropped to sixth in size, more than two-thirds of its population falling victims of the scourge.

Cultivation of the fields was utterly impossible, and there were not even enough able-bodied laborers to gather the crops which had matured. Cattle roamed through the corn unmolested and the harvest rotted where it stood.

Out of the situation which resulted from the impoverishment of the labor resources of the kingdom grew the first great clash in England between capital and labor. The peasants became masters of the situation. In some instances they demanded double wages, and whereas formerly land-owners had paid one-twelfth of every quarter of wheat as the harvesting wage, they were now forced to pay one-eighth.

Parliament hurriedly passed drastic laws in an effort to meet the new condition. Statutes provided that "every man or woman, bond or free, able in body and within the age of threescore years, not having his own whereof he may live, nor land of his own about which he may occupy himself, and not serving any other, shall be bound to serve the employer who shall require him to do so, provided that the lords of any bondsman or land-servant shall be preferred before others for his service; that such servants shall take only the wages which were customarily given in 1347" (the year prior to the first appearance of the plague).

Violation of the statute meant imprisonment; and it was further provided that any reaper, mower, or workman leaving service should be imprisoned. If workmen demanded more than the regulation wage, they were to be fined double, and the land-owner who paid more than the prescribed sum was to be fined treble that amount. Runaway laborers were to be branded with an "F" as a perpetual sign of their falsity. No bail was to be accepted for any of these labor offenses.

It is not within the province of this article to review the political turmoil which this legislation brought about. Suffice it to say that it resulted in precipitating one of the most distressing times in the history of constitutional government since the Magna Charta was wrested from King John.

FAMINES OF FRANCE

No country of Europe suffered more from famine between the eighth century

and the close of the eighteenth than France. The failure of crops from natural causes entailed far fewer hardships, however, than the gross injustice of the country's kings and courtiers. From 750 to the French Revolution, the land scarcely recovered from one period of dearth before some untoward event plunged it into new woes.

From 987 to 1059, during the early stages of feudalism, forty-eight famines devastated the peasantry—an average of a famine every eighteen months. The year 1000 was a time of extraordinary suffering, for the whole country was seized with a panic, fearing that the world would come to an end during this the millennial year. Thousands went on pilgrimages, deserting their homes and their fields and obstructing the whole normal course of existence. This was the first wave of the great national movement which found expression a century later in the Crusades.

The fear of the end of the world having passed with the end of the millennial year, it was revived with even greater intensity when the 1000th anniversary of the Crucifixion approached. The miseries of mankind in Gaul at that time were incredible. The whole course of nature seemed to be upset, and there was intense cold in summer, oppressive heat in winter. Rains and frosts came out of season, and for three years (1030 to 1032) there was neither seed time nor harvest. Thousands upon thousands died of starvation, and the living were too weak to bury the dead. There were many horrible instances of cannibalism, and human flesh is said to have been exposed for sale in the market at Tournas. In their maddened condition the peasants exhumed human bodies and gnawed the bones.

One of the harrowing incidents of the time, which will give some idea of the insanity which suffering induced, occurred in the wood of Chatenay, near the town of Macon. A traveler and his wife stopped at a hut supposedly occupied by a holy hermit. Scarcely had they entered the abode, however, when the woman discovered a pile of skulls in the corner. She and her husband fled to the town, and when an investigation followed it was found that the hermit had murdered and partly devoured 48 men, women, and children.

Grass, roots, and white clay were the ordinary articles of food for the poorer classes during these terrible years, and as a result the sufferers almost ceased to resemble human beings, their stomachs becoming greatly distended, while almost all the bones of their bodies were visible beneath their leathery skin. Their very voices became thin and piping.

Packs of raging wolves came out of the forests and fell upon the defenseless peasants. It seemed as if mankind in France could never recover. But suddenly the fields brought forth grain in abundance and the peasantry responded with astonishing virility.

FAMINE AMONG THE FRENCH CRUSADERS

France suffered greatly from famine and pestilence during the Crusades, but like the other nations which participated in the eight attempts to wrest the Holy Land from the Mohammedans, the most spectacular instances of privation occurred among her armies in Palestine and Egypt rather than among the people at home. During the first crusade, plague, supplemented by famine, destroyed 100,000 men, women, and children between September and December of the year 1097.

During the crusade against the heretics in 1218, one-sixth of the assailants perished at the siege of the Egyptian city of Damietta, while only 3,000 (some historians say 10,000) of the 70,000 inhabitants of the beleaguered place survived. In the eighth and last crusade France lost her king, Louis IX, and his son, Jean Tristan, both of whom were stricken with the pestilence which broke out at Carthage.

That indefatigable Walloon chronicler, Froissart, gives a simple but effective account of the four years' famine which fell upon France in the middle of the fourteenth century. "During that time," he writes, "the merchants nor others dared venture out of town to look after their concerns or to take any journey, for they were attacked and killed what-

ever road they took. The kingdom was so full of the Navarrois [adherents of the King of Navarre] that they were masters of all the flat countries, the rivers, principal towns, and cities. This caused such a scarcity of provisions in France that a small cask of herrings sold for 30 golden crowns. Many of the poor died of famine. The lower classes suffered particularly for salt, which was highly taxed in order to secure the money with which to pay the army."

Of course, much of the suffering of this period in France was due to the fact that the whole country, like England, had had its vitality sapped by the ravages of the Black Death a few years previously.

"In 1437 a great famine swept over France and many other Christian countries," records Enguerrand de Monstrelet. "It was a pitiful sight to witness multitudes in the large towns dying in heaps on dunghills. Some towns drove the poor out of their gates, while others received all unfortunates and administered to them as long as they were able. Foremost in this act of mercy was Cambray."

This dearth lasted for two years, and it resulted in many strict regulations governing the sale and distribution of corn. Embargoes against the shipment of grain out of the communities in which it was raised were not unusual. The city of Ghent was especially active in dealing with the situation. An order was issued prohibiting the brewing of beer and all other liquors in which grain was used, and another conservation measure was the killing of all dogs belonging to the poorer people, in order that these classes might have the food that otherwise would have gone to the pets.

SUFFERING DUE TO EXTRAVAGANCE OF THE FRENCH COURT

The closing years of the reign of Louis XIV were marked by general suffering among the laboring classes throughout France, not so much on account of the failure of crops, but because of the oppressive burden of taxation necessitated by the extravagance and wastefulness of the French court. In some districts as much as three-sevenths of the peasant's daily wage was seized by the tax-gatherer. In the Duchy of Burgundy three-fourths of the people lived on barley and oaten bread. Emigration and death reduced the population until every seventh house was empty, and unusually small families held out little promise for the future rejuvenation of the country. The streets of towns and cities were thronged with beggars clad in indecent rags.

One of the greatest privations to which the peasants were subjected was the loss of their cattle, all of which were eaten. When a severe winter came, the wretched creatures were deprived of the warmth which they were accustomed to derive from sleeping side by side with the beasts.

Madame de Maintenon was accused, perhaps unjustly, of making a fortune out of France's miseries by trafficking in corn. She was mobbed in her carriage by the hungry crowd as she rode out of Versailles, where the living skeletons of men and women clamored daily for bread and could with difficulty be kept from the presence of the king. For a hundred years thereafter caricaturists depicted Frenchmen as tall, gaunt, lantern-jawed creatures, in contrast to the well-fed figure of the English John Bull.

The French Government officials made many sporadic efforts to better conditions, but their methods of dealing with the situation seemed only to magnify the distress. For example, they doubled the tolls on roads, and thereby put an end to what little commerce remained; ridiculous tariffs on foodstuffs aggravated the populace and many riots followed. Garrisons revolted and had to be given large bounties to return to their duties.

One of the most terrible periods of starvation which any city has undergone in modern times befell Paris during its siege in the Franco-Prussian War of 1870-1871. Thousands of refugees had flocked to the capital from the surrounding districts as the Germans advanced, yet there was not sufficient food within the fortifications to feed the normal population of the city. No provision had been made for the possibility of military disaster; the French Empire's only expectation had been an immediate triumph of its armies in the field. The severity

WHEN THE SEASONS SMILE ON RUSSIAN WHEAT LANDS

Russia is one of the world's greatest granaries, and it is the elimination of its wheat crop, owing to the exigencies of war, which has caused so large a responsibility to devolve upon America—the responsibility of feeding most of the nations of western Europe.

of the winter added its hardships to the horrors of famine. The civilian population was reduced to the most desperate straits. Dogs, cats, and rats were sold for food at extravagant prices and they were deemed rare luxuries by the starving. When the garrison finally capitulated and the Germans marched down the Champs Elysees, on March 1, many foreign nations joined in spirited rivalry to revictual the stricken city, but it was many weeks before the distress of the people could be relieved.

IRELAND'S MANY FAMINE WOES

Ireland has been a land of many woes, and not the least of these have been the famines which from time to time have taken such heavy toll of the island's manhood. As early as 963-964, an intolerable famine visited the country, and parents are said to have sold their children in order to get money with which to buy food. On at least three occasions the peasantry has been driven to cannibalism. The most notorious instance occurred during the dearth which accompanied the wars of Desmond, in the reign of Queen Elizabeth in England.

The poet Spenser, who was an eyewitness to the distress of the time, says that the famine slew far more than the sword, and that the survivors were unable to walk, but crawled out of the woods and glens. "They looked like anatomies of death; they did eat the dead carrion and one another soon after, insomuch as the very carcases they spared not to scrape out of their graves. To a plot of watercresses and shamrocks they flocked as to a feast."

Ireland's greatest hours of travail were postponed, however, until the two great famines of the nineteenth century, brought about in both instances by the failure of her potato crops.

The famine of 1822 was but a prelude to the desolation which swept over the island in 1845-1846. The earlier failure of the potato crop should have forewarned the people of the disaster which they were constantly inviting, and many reformers preached for years against the practice of neglecting the cultivation of all grains in favor of the American tuber.

"While the agriculturalists of the continent were suffering from overproduction, a grievous famine arose in Ireland in 1822, showing the anomalies of her situation, resulting from the staple food of her population differing from that of surrounding nations, or the limitation of her commercial exchanges with her neighbors," says Wade's British History. "Her distresses from scarcity were aggravated by the agrarian outrages, originating in the pressure of tithes and rackrents on the peasantry and small farmers. Several of the ringleaders of these disorders were apprehended by the civil and military powers and great numbers executed or transported."

This period of stress in 1822 proved to be the rapids above the great cataract of calamity over which the Irish people plunged in 1845. In the latter year a pestilential blight of unexampled severity caused the whole potato crop to rot. Three-fourths of the population of the island was entirely dependent upon this staple for food at that time. The resulting suffering can scarcely be imagined.

AMERICA AMONG THE FIRST TO AID THE IRISH

As soon as the seriousness of the situation was realized aid was rushed to the starving people from all quarters of the globe, America being among the foremost sending food. The British Government established relief works, and throngs of peasants rushed to get "the Queen's pay."

In March and April, 1847, 2,500 died weekly in the workhouses alone. Thousands of starving peasants poured into England, many dying of famine fever while on board the emigrant ships. The total death toll was between 200,000 and 300,000.

Owing to deaths and emigration, the population of the island was reduced from 8,300,000 in 1845 to 6,600,000 six years later, and has been declining steadily ever since, until today it is about 4,300,000.

The pages of India's history are black with the blotches of famine. This vast and densely populated peninsula has been the very haunt of hunger for ages. Its

Photograph from Paul Thompson

SOMEWHERE ON THE ROAD "SOMEWHERE IN FRANCE"

Before the war these refugees were "a bold peasantry, their country's pride," adding to the nation's wealth and a people's plenty by the cultivation of rich fields. Today they are homeless, a drain upon the world's food resources rather than a productive element. America must make good the loss of their labor.

peasants are among the most frugal in the world and its valleys are among the most fertile; but it has suffered more from lack of food than any other nation on the face of the earth, not even excepting China.

And yet, if so intelligent and discriminating a chronicler as Megasthenes, ambassador in India from the court of Seleucus between 317 and 312 B. C., may be believed, up to that time there had never been a famine in this land. The uncertainty of the seasons since the dawn of the Christian era develops a far different story.

FAMINE'S TERRIBLE TOLL IN INDIA

In the ancient chronicles of Indian courts little space is given to the sufferings of the common people; hence the early accounts of famine are meager; but occasionally a single sentence from a poem or a historical sketch is illuminating in its very brevity. For example, we find the line, "The flesh of a son was preferred to his love," grimly suggesting the practice of cannibalism in times of dearth.

There are records of whole provinces being depopulated as early as 1022 and 1052 A. D., while at about the time that the Black Death was making its appearance in Europe a famine of such severity swept over Hindustan that the Mogul emperor himself was unable to obtain the necessaries for his household.

In 1630 a devastating drought afflicted the province of Gujarat and whole centers were depopulated. A Dutch merchant, returning from Swally, reported

that of 260 families only 11 had survived, while in Surat, a great and crowded city, he saw hardly a living soul, but at each street corner found piles of dead with none to bury them.

Unlike the famines in other countries, where there is frequently a variety of factors contributing to the failure of crops, in India the shortage almost invariably results from an absence of rain. The country is wholly dependent for food upon its countless small farms, which are worked on practically no capital. Local credit is in the main unorganized, and in times of stress millions of laborers are thrown out of work.

The success of India's crops from year to year depends upon two monsoons—the southwest, or *the rains*, and the northeast, which brings the winter rains. For a month or two before the rains (April and May) the greater part of the peninsula fairly gasps in the heat. The soil is baked and cultivation is impossible. With June comes the monsoon, which continues until the latter part of September. After the first showers the peasants plow their fields and sow the autumn harvest of millet and rice. The spring harvest, which consists largely of wheat and barley, is sown in October and November. Not only do droughts disarrange this schedule, but prolonged rains, accompanied by east winds, cause the wheat to rust, while hot west winds cause the swelling grain to shrivel on the stalk.

The first of the Indian famines to attract wide-spread interest in the western world was the great catastrophe of 1769-1770, during which it is estimated that fully 10,000,000 souls, a full third of the population of Bengal, perished. Like all the famines, it resulted from a failure of rain, supplemented by maladministration on the part of the East India Company.

The famines which occurred from 1780 to 1790 are worthy of note, because it was during this period that the British began to organize relief for the destitute. Lord Cornwallis, by his administrative ability as governor general in this trying time, here managed to regain some of the laurels which he had lost by his defeat at the hands of the American colonists during the Revolutionary War.

In the twenty-two famines which occurred in India between 1770 and 1900 more than 15,000,000 natives perished, and some of the most terrible years—notably the famine in southern India in 1876-1878, when 5,200,000 starved in British territory alone—have befallen the empire just when the government believed it had almost mastered the problem of relief.

CASTE COMPLICATES INDIAN FAMINE RELIEF

Great Britain has had many difficulties to overcome in handling the Indian food situation, not the least trying being the ever-recurring problem of caste.

Occupation is still preserved among the Indian natives by inheritance and tradition, so that the diversion of labor to industrial pursuits has been an almost impossible task. The supply of agricultural labor constantly outruns the demand, thus keeping the wage scale extremely low. Caste also prevents people from leaving crowded districts and going to sparsely inhabited regions, of which there are many.

In time of distress the restrictions which caste throws about rescue and relief work would be exasperating if they were not so tragic. For example, in the terrible Orissa famine thousands of Santals perished, in the midst of ample supplies furnished by the government, before it was discovered that there is a peculiar tenet of their faith which forbids them to touch food cooked by Brahmins. It was also discovered that skilled weavers would not go to the ordinary relief-work camps for fear that the hard labor would cause them to lose the delicacy of touch which they value so highly.

CHINESE FAMINE WHICH STARTED THE BLACK DEATH

China is another land which famine seems to have marked for its own. Here the difficulty is not so much a matter of crop failures as the excess production of the human crop from year to year. Existence is a perpetual struggle for food in the Celestial Empire, and the smallest deviation from a maximum yield destroys the margin of safety between "barely enough" and "starvation."

The four years between 1333 and 1337 constituted a period of unimagined suffering throughout China, and it is highly probable that it was in this era that the seeds of disaster were sown for Europe's Black Death, which appeared in the following decade. Famine and pestilence laid the whole country waste. Excessive rains caused destructive inundations, and according to Chinese records 4,000,000 people perished from starvation in the neighborhood of Kiang alone. Violent earthquakes occurred in many parts of the kingdom; whole mountains were thrown up and vast lakes formed. The fury of the elements subsided and the ravages of famine ceased in the very year that the Black Death reached England.

The four famines of 1810, 1811, 1846, and 1849 are said to have taken a toll of not less than 45,000,000 lives. In 1875-1878 four provinces in northern China, the district known as the "Garden of China," suffered a failure of crops owing to lack of rain, and in an area about the size of France nine millions perished.

Two recent periods of dearth in China which awakened wide interest and elicited generous contributions from the United States for relief work were the famines of 1906 and 1911, when floods in the Yangtze River basin affected 10,000,000 people residing in an area the size of the State of Kentucky.

During both of these famines parents found it necessary to sell their daughters, not only to obtain food for themselves, but in order that the children might not starve. They were usually sold to wealthy families, in which they became slave girls. Early in the period of distress girls of 10 to 15 years of age brought as much as $20 each; but when the food shortage was most severe the customary quotation in the slave market was 60 cents each, while in one instance a father is known to have accepted 14 cents and two bowls of rice in exchange for his child.

No other race is as docile as the Chinese in times of famine. Their resignation in the face of calamity is amazing. For instance, in the food shortage of 1906-1907 a starving army of 300,000 peasants camped beneath the walls of the city of Tsinkiangpu. The grain warehouses of the town, a place of 200,000 inhabitants, were overflowing with wheat, maize, and rice, and these supplies were constantly on display; yet there were no riots. The thousands outside the walls sat themselves down to die, while those within continued to transact the ordinary affairs of every-day life.

HUNGER AND THE RUSSIAN PEASANT

Next to the proletariat of India and China, the Russian peasant feels the pinch of poverty and hunger more keenly and more frequently than any other citizen on earth.

One of the earliest famines in Russia of which there is any definite record was that of 1600, which continued for three years, with a death toll of 500,000 peasants. Cats, dogs, and rats were eaten; the strong overcame the weak, and in the shambles of the public markets human flesh was sold. Multitudes of the dead were found with their mouths stuffed with straw.

Three Russian famines of comparatively recent date were among the most severe in the history of the country. They occurred in 1891, 1906, and 1911. During the ten years following the first of these periods of dearth the government allotted nearly $125,000,000 for relief work, but the sums were not always judiciously expended.

In 1906 the government gave 40 pounds of flour a month to all persons under 18 and over 59 years of age. All peasants between those ages and infants under one year of age received no allowance, and it became necessary for the younger and older members of the family to share their bare pittance with those for whom no provision was made. The suffering was intense and the mortality exceedingly heavy, but the available statistics are not wholly reliable.

The famine of 1911 extended over one-third of the area of the empire in Europe and affected more or less directly 30,000,000 people, while 8,000,000 were reduced to starvation. Weeds, the bark of trees, and bitter bread made from acorns constituted the chief diet for the destitute. This was unquestionably the most wide-

XUM

spread and most severe famine that has befallen a European nation in modern times.

Both North and South America have been happily ignorant of extensive famines since the days of Columbus. There is a more or less apocryphal account of a great drought in Mexico in the year 1051, which caused the Toltecs to migrate, and in 1877 a scarcity of rain exposed 200,000 people in the northern provinces of Brazil to suffering; but with these exceptions the pinch of hunger in the Western Hemisphere has been felt from time to time in restricted areas only.

From this kaleidoscopic picture of suffering undergone during some of the most direful periods of world history it is apparent that there is nothing grandiose or heroic about death from starvation; neither is there glory to be gained, nor medals of honor or military crosses to be won in the battle for food. The casualties in the struggle are enormous, the compensation nil. No monuments are raised to the victims, no pensions provided for decrepit survivors. The suffering of those who succumb is pitiful beyond description, and the individual's anguish inevitably is intensified by the necessity of witnessing the agony of his loved ones who perish with him.

AMERICA'S TASK

To allay the pangs of world hunger and to banish famine from the earth is America's task and her determination.

Early last spring, when it became evident that all Europe would be largely dependent upon the United States for its food during the coming autumn and winter, an appeal was issued to the American people to utilize every available acre of ground in the production of foodstuffs. Farmers were urged to increase the yield of their fields by employing every agency of science and industry; dwellers in towns and cities were asked to plant vegetables in their garden plots; those who had no ground on which to produce foodstuffs were enlisted in the cause when they agreed to limit to their necessity the consumption of food.

But the object is only half achieved.

Having grown the foodstuffs, it is imperative that all practical means be employed to gather and preserve the fruits of the soil and of man's labor. These "bumper" crops of vegetables, raised in places which formerly were unproductive, can play no part in feeding stricken Europe unless they supply our own needs, thus releasing non-perishable grains for exportation.

THE ALLIES' NEEDS AND AMERICA'S RESOURCES

It is estimated that the Entente Allies will require 550,000,000 bushels of wheat from America this year, if the efficiency of their armies on the battle fronts is to remain unimpaired and if the civilian populations of France, England, and Italy are to be maintained in full bodily vigor, in order that they may produce the munitions and supplies essential to the successful prosecution of the war against Germany.

If the United States should consume its normal amount of grain, the quantity available for export from the 1917 harvest would fall short of the requirements abroad by 250,000,000 bushels. But this deficit can be made good, without serious privation to Americans, by the exercise of economy, thrift, and ingenuity—economy, in avoiding all waste; thrift, in gathering the vegetables which have been produced in such abundance this summer, and ingenuity in preserving, curing, canning, and drying for winter use all the perishable foodstuffs and fruits not required for immediate consumption.

The goal in this great campaign against waste in America is the safeguarding of all humanity against the suffering and the social and moral degradation which a world-wide famine would entail.

The American Government is earnestly enlisted in this supreme effort, its food administration bureau having taken over the large problems of price control and regulation of the exportation of foodstuffs; but the essential, the vital problem of food conservation remains the responsibility of each household.

Only by the sacrifice which the individual American makes will the welfare of another individual across the Atlantic be assured. Never before in so literal a sense is each man in this country the surety and the keeper of his brother abroad.

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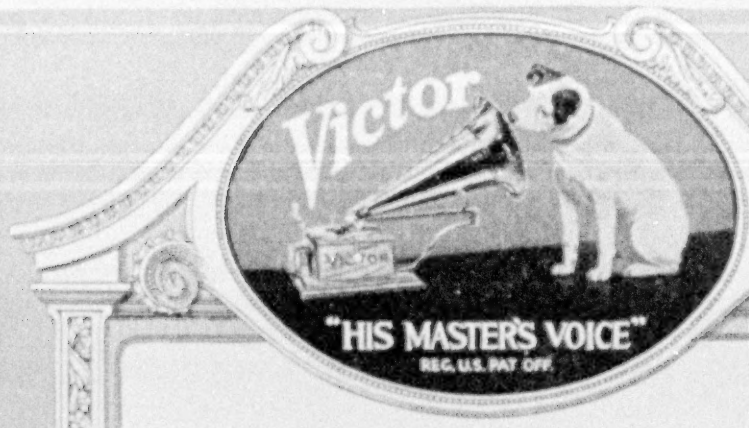

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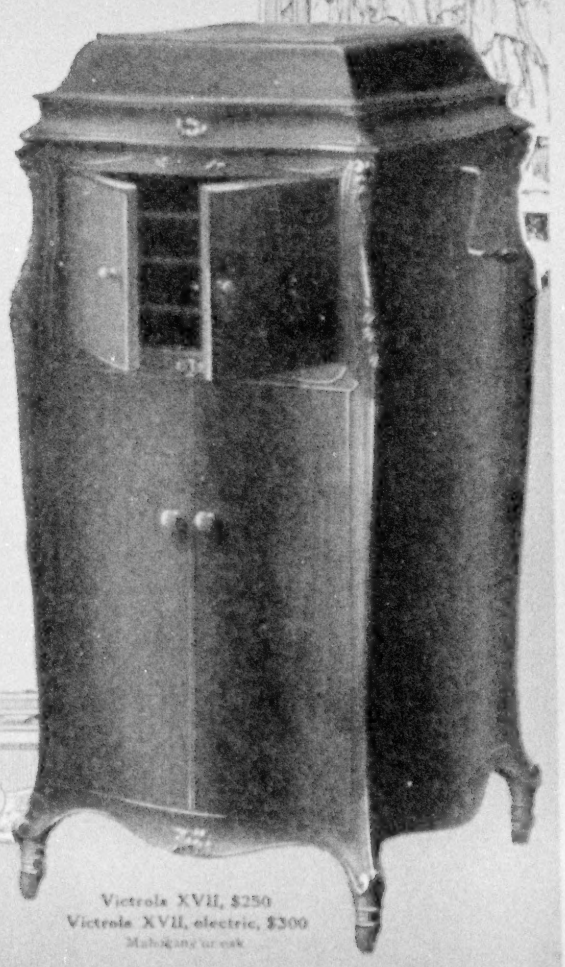

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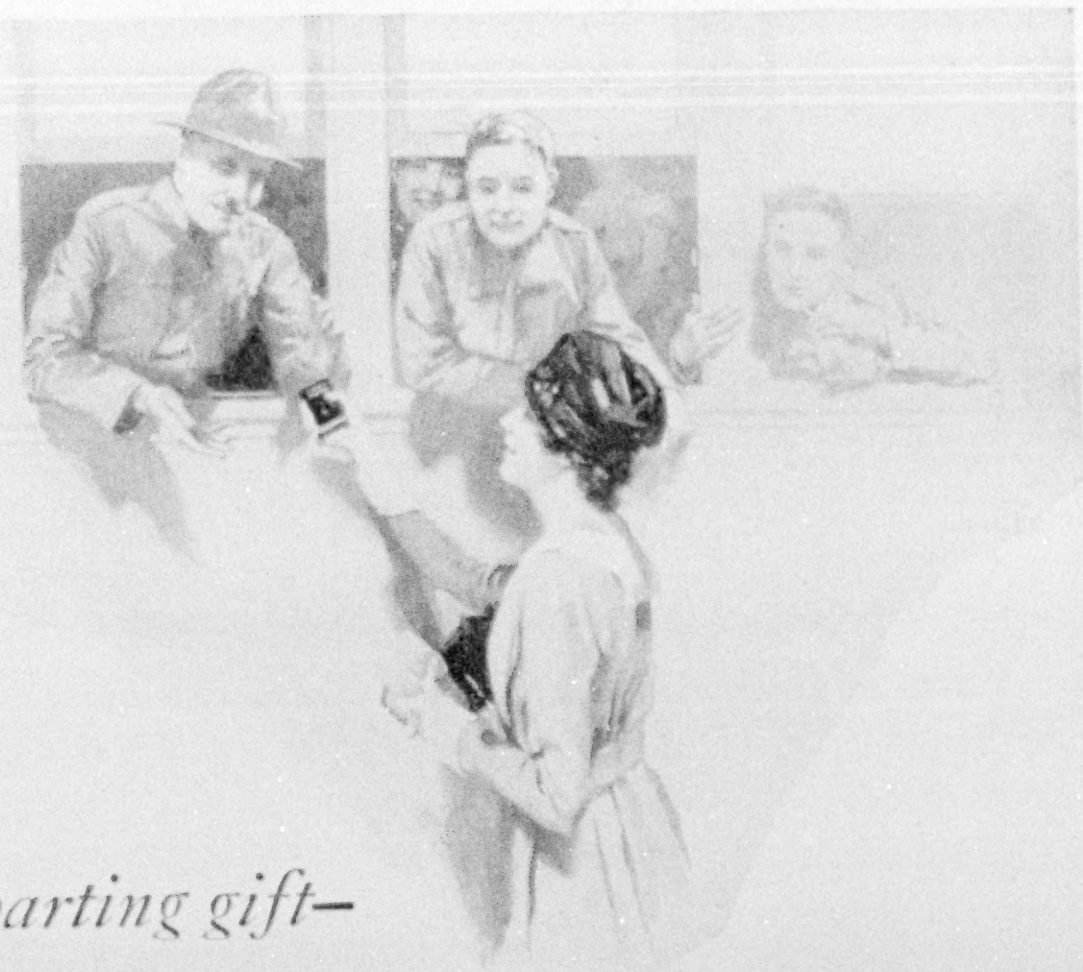

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It is monotony, not bullets that our soldier boys dread. No fear, when the time comes, they will uphold bravely the traditions that are dear to every loyal American heart. But in the training camps and during the months of forced inaction there are going to be some tedious, home-sick days—days the Kodak can make more cheerful.

Pictures of comrades and camp life, pictures of the thousand and one things that can be photographed without endangering any military secret will interest them, and will doubly interest the friends at home. Tens of thousands of brave lads in the camps and trenches of France are keeping their own Kodak story of the war—a story that will always be intense to them because it is *history* from their view-point. And when peace comes it will make more vivid, more real *their story of their war* as they tell it again and again to mother and sister and wife and little ones.

The nation has a big job on its hands. It's only a little part, perhaps, but a genuine part of that job to keep up the cheerfulness of camp life, to keep tight the bonds between camp and home. Pictures from home to the camp and from camp to the home can do their part.

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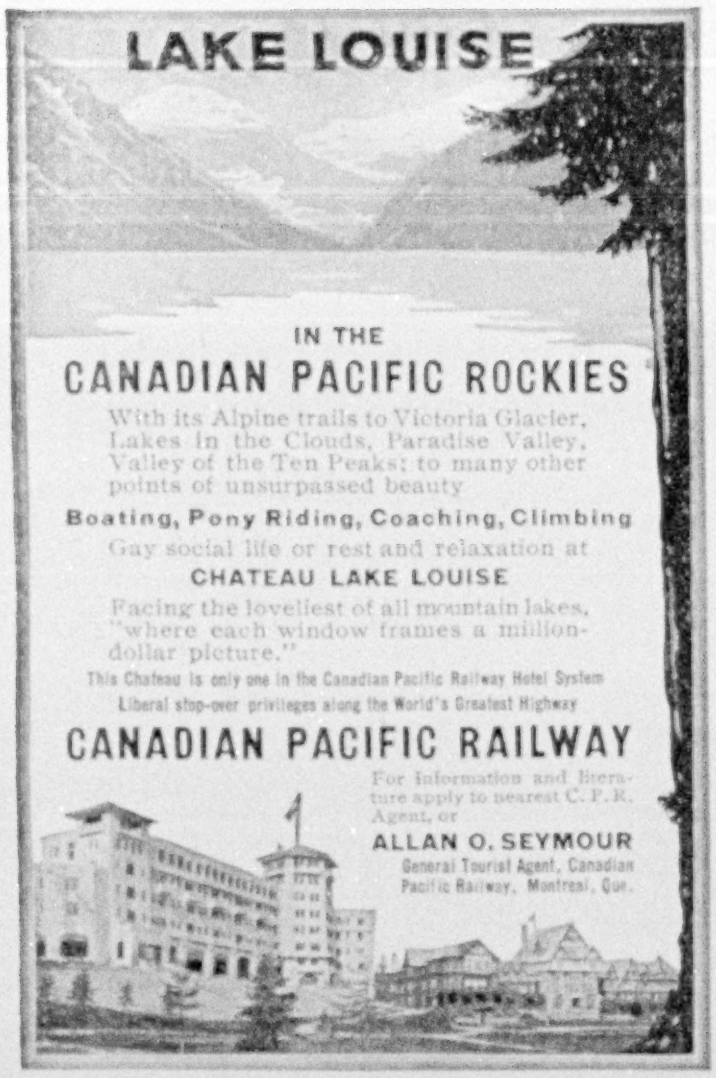
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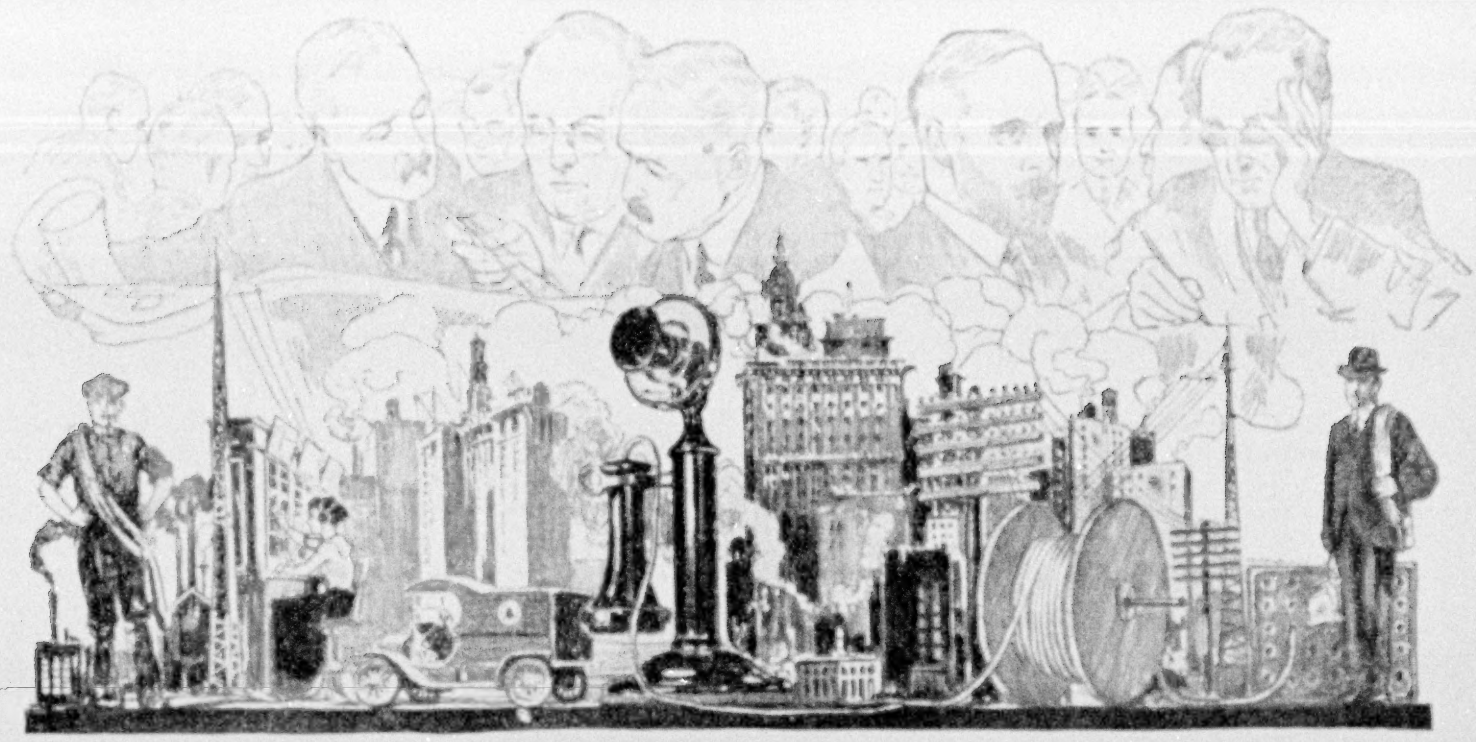

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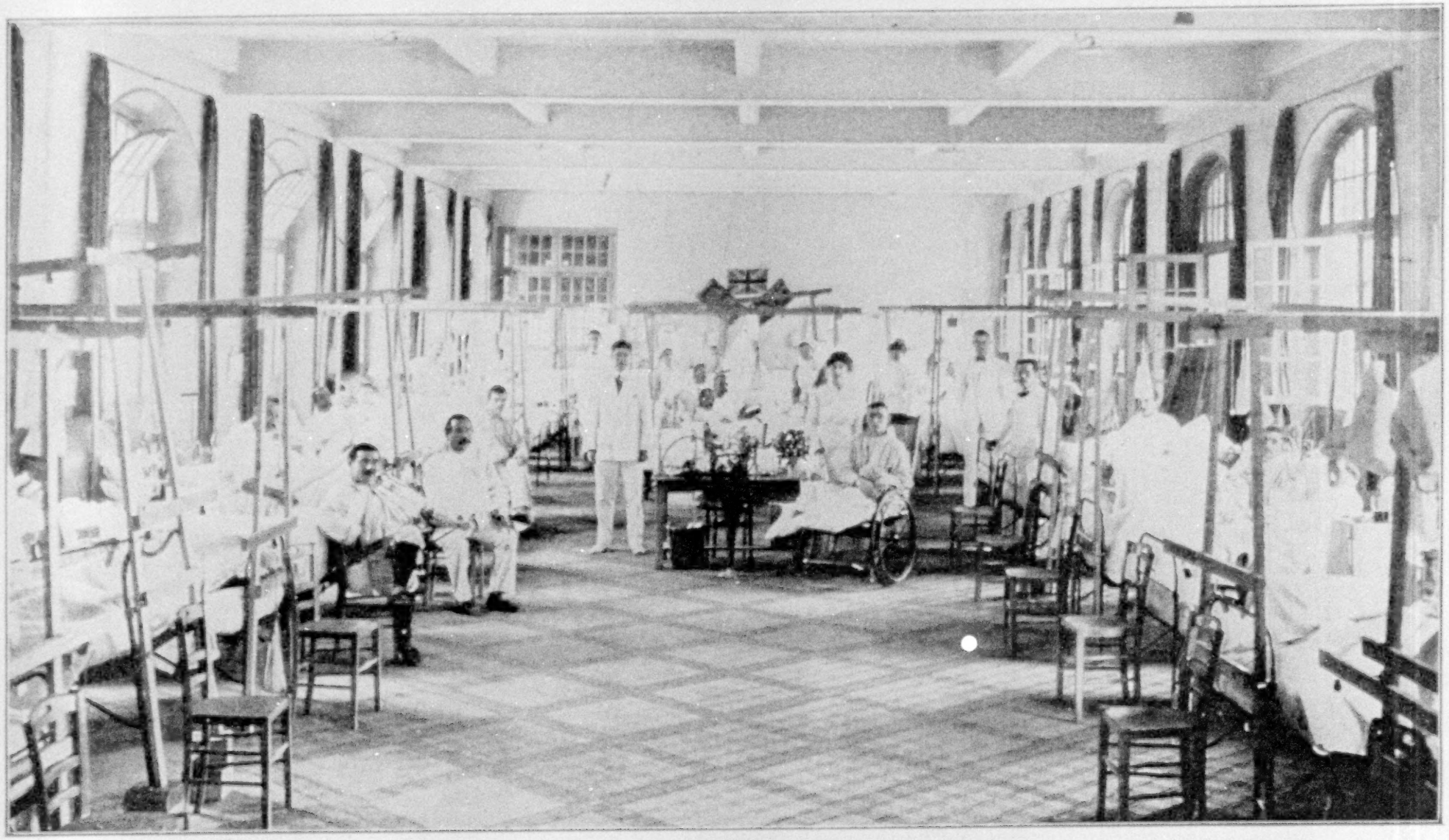

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I enclose $..... toward the National Geographic Society Ward of the American Ambulance Hospital, Neuilly, France, *thus indicating my belief in preparedness.*

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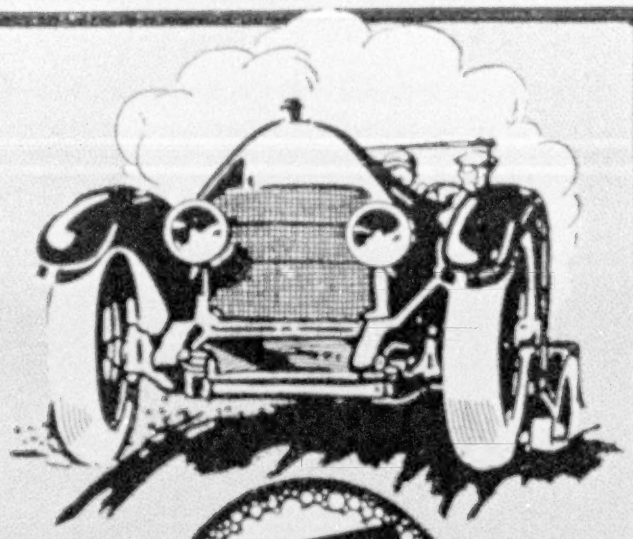

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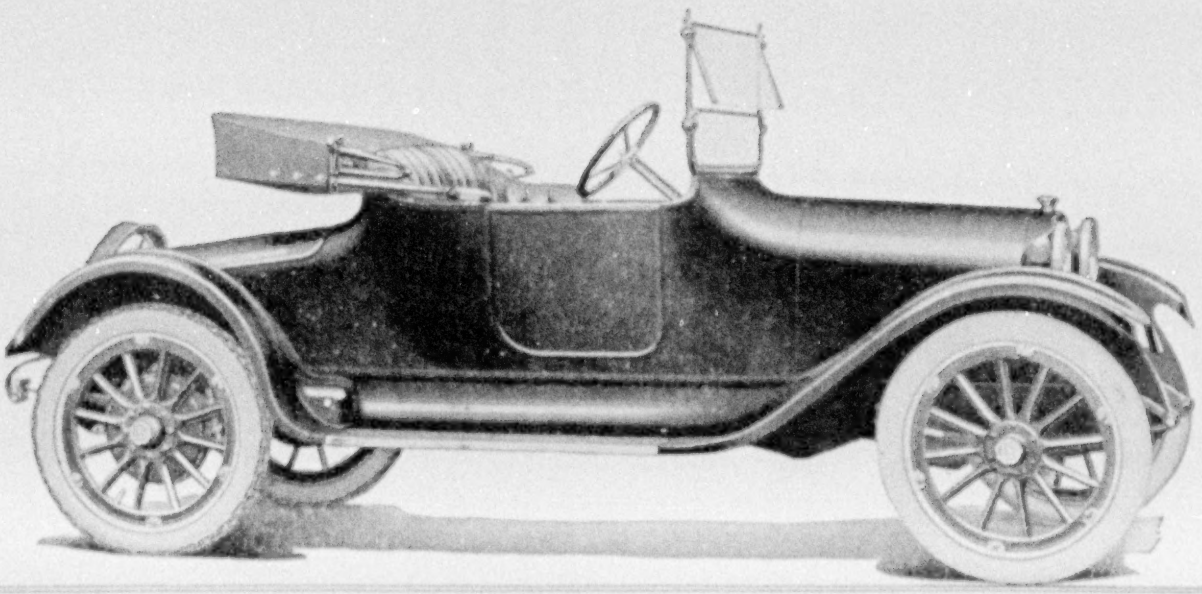

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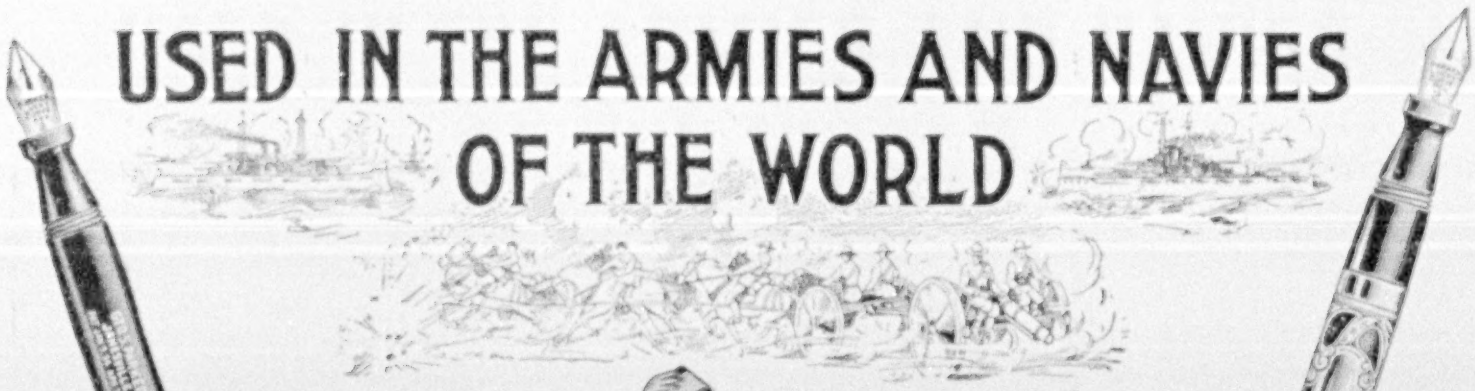

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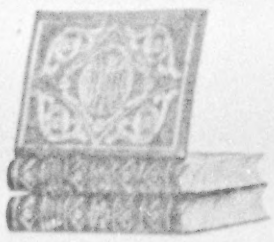

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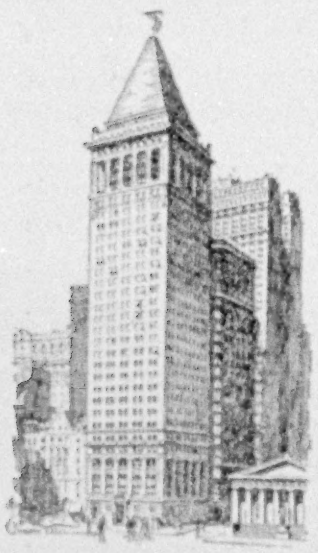

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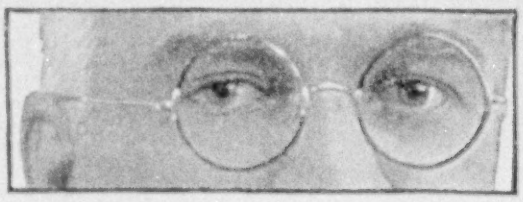

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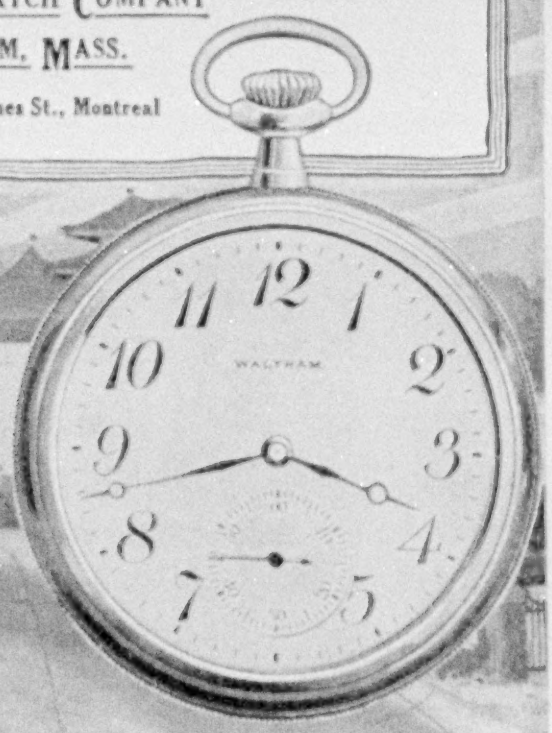

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There is no middle ground in this Thrift question.

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There never was a more complete demonstration of a *principle* than the way every *thrift record* in the fine-car class has been established by the *Franklin Car.*

Efficiency Standards Established for Motor Cars

Gasoline! Franklin National Economy Test, May 1, 1914—94 Franklin Cars in all parts of the country averaged 32.8 miles to the gallon of gasoline.

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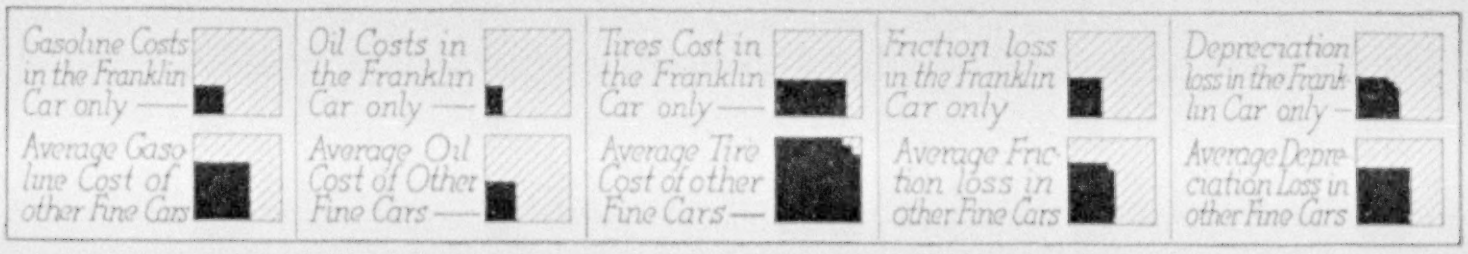
Gasoline Costs in the Franklin Car only
Average Gasoline Cost of other Fine Cars
Oil Costs in the Franklin Car only
Average Oil Cost of Other Fine Cars
Tires Cost in the Franklin Car only
Average Tire Cost of other Fine Cars
Friction loss in the Franklin Car only
Average Friction loss in other Fine Cars
Depreciation loss in the Franklin Car only
Average Depreciation Loss in other Fine Cars

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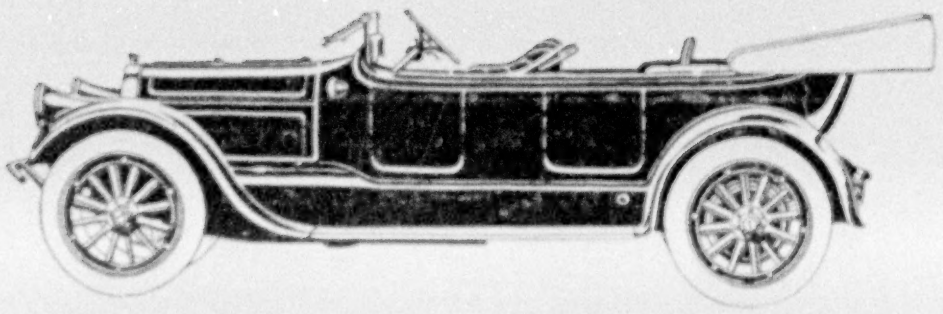
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